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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. ~~200~~. 35

AUGUSTUS DAY, APPELLANT

vs.

THE FAIR HAVEN AND WESTVILLE RAILWAY COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR
THE DISTRICT OF CONNECTICUT.

FILED JUNE 17, 1886.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. 290.

AUGUSTUS DAY, APPELLANT

vs.

THE FAIR HAVEN AND WESTVILLE RAILWAY COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CONNECTICUT.

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1 The Circuit Court of the United States for the District of Connecticut. In Equity.

AUGUSTUS DAY
vs.
THE FAIR HAVEN & WESTVILLE RAILWAY COMPANY.

To the Honorable Nathaniel Shipman, district judge of the district of Connecticut:

The petition of appeal of the above-named Augustus Day respectfully showeth—

That a decree was lately made in the circuit court of the United States for the district of Connecticut, in equity, before your honor, bearing date the twenty-third day of March, A. D. 1885, in a certain cause pending in said court, wherein your petitioner was complainant and The Fair Haven & Westville Railway Company was defendant, whereby your petitioner's bill of complaint was ordered to be dismissed, which decree, as your petitioner is advised, and every part thereof is erroneous and ought to be reversed.

Whereupon this appellant respectfully prays that said decree may be sent to the Supreme Court of the United States and 2 filed with the clerk thereof without delay, and that the same may be reversed or that such other order or decree may be made by the Supreme Court of the United States as shall be agreeable to equity and good conscience, and that this appellant may be restored to all the things which he hath lost by said decree.

And this appellant will, as in duty bound, ever pray, &c.

SPRAGUE & HUNT,
Sol'rs & of Counsel for Petitioner.

3 Know all men by these presents that we, Augustus Day, of the city of Detroit, county of Wayne, State of Michigan, and E. S. Goodrich, of the city of Hartford, State of Connecticut, — held and firmly bound unto the Fair Haven & Westville Railroad Company, a corporation duly organized under the laws of the State of Connecticut, in the sum of one hundred dollars, lawful money of the United States of America, to be paid to the said Fair Haven & Westville Railroad Company or to its certain attorney, heirs, executors, administrators, or assigns; to which payment, well and truly to be made, we hereby bind ourselves, our heirs, executors, and administrators and each and every of them, firmly by these presents.

Sealed with our seals. Dated the twenty-eighth day of January, one thousand eight hundred and eighty- (eight) six.

Whereas lately, at the September term of the circuit court of the United States for the district of Connecticut, in a suit depending in said court between Augustus Day, complainant, and The Fair Haven & Westville Railroad Company, defendant, a decree was entered against the said complainant, and the said complain- 4 ant having obtained an appeal to the Supreme Court of the United States and filed a copy thereof in the clerk's office of said court to reverse the decree in the aforesaid suit, and a citation directed to the said defendant, citing and admonishing it to be and appear at a Supreme Court of the United States, to be holden at Washington the second Monday of October next—

The condition of this obligation is such that if the said Augustus Day shall prosecute said appeal to effect and answer all damages and costs if he fails to make good the appeal, then the above obligation to be void; else to remain in full force and virtue.

AUGUSTUS DAY.
E. S. GOODRICH.

Bond is satisfactory.
WM. EDGAR SIMONDS,
Defendant's Solicitor.

The foregoing bond is approved & the appeal allowed.
N. SHIPMAN,
District Judge.

5 The United States of America to the Fair Haven & Westville Railway Company, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States to be holden at Washington on the second Monday of October next, pursuant to an appeal filed in the clerk's office of the circuit court of the United States for the district of Connecticut, wherein Augustus Day is appellant and you are appellee, to show cause, if any there be, why the decree rendered against the said appellant, as in the said appeal mentioned, should not be corrected or reversed or that such other order or decree may be made as shall be agreeable to equity and good conscience.

Witness the Honorable Morrison R. Waite, Chief Justice of the Supreme Court of the United States, this 9th day of April, in the year of our Lord one thousand eight hundred and eighty-six.

N. SHIPMAN,
District Judge.

Service accepted.
April 9, 1886.
WM. EDGAR SIMONDS,
Defendant's Solicitor.

6 The return of the judges of the circuit court of the United States to the appeal of the appellants herein, the bill of complaint, pleadings, proceedings, and decree of the said circuit court whereof mention is made in said appeal follow in these words, viz:

Be it remembered that on the 13th day of December, 1882, there was filed in court a bill of complaint in the words and figures following, viz:

7 To the judges of the circuit court of the United States for the circuit and for the district of Connecticut:

Augustus Day, of Detroit, a citizen of the State of Michigan and a resident of the eastern district thereof, brings this bill of complaint against the Fair Haven and Westville Horse Railroad Company, a corporation and a citizen and resident of the United States and of the district of Connecticut.

And thereupon your orator complains and says that your orator, being a citizen of the United States, was the first and original inventor or discoverer of a new and useful improvement in "railway track clearers," which was not known or used by others before the invention thereof by your orator and not on sale for more than two years before his application for a patent thereon with his consent and allowance; and thereupon your orator applied to the Commissioner of Patents of the United States for letters patent for said improvement, and fully and in all respects complied with the requirements of the law in that behalf, and especially made
8 oath that he verily believed himself to be the original and
first inventor or discoverer of the said improvement; and also paid into the Treasury of the United States the sum of thirty-five dollars, and presented to the Commissioner of Patents of the United States a petition that letters patent might be granted him for his invention or discovery; and also delivered and filed in the office of the said Commissioner of Patents a written description of his said improvement in such full, clear, and exact terms as to enable any person skilled in the art with which said invention is most nearly connected to make and use the same, which said description was duly signed by your orator and attested by two witnesses; and thereupon the said Commissioner of Patents caused letters patent to be made out and issued in the name of the United States of America, in due form of law in all respects, bearing date the ninth day of April, in the year eighteen hundred and seventy-two, and numbered 125,547, whereby was granted unto your orator, his heirs or assigns, for the term of seventeen years from the date thereof, the full and exclusive right and liberty of making, using, and vending the said improvement, which is entitled in said letters patent
9 "a new and useful improvement in railway track clearers,"
and the said letters patent, having been signed by the Secretary of the Interior of the United States and countersigned and sealed with the seal of the Patent Office by the Commissioner of Patents of the United States, and the same having been duly recorded, were delivered to your orator.

III.

And your orator further shows unto your honors that afterwards your orator surrendered the said letters patent to the Commissioner of Patents in due form of law, and such proceedings were had that said Commissioner did, on the twenty-seventh day of August, in the year eighteen hundred and seventy-eight, reissue to your orator letters patent of the United States entitled "For new and useful improvement in track clearers," and numbered reissue No. 8388, signed by the Secretary of the Interior of the United States and countersigned and sealed with the seal of the Patent Office by the Commissioner of Patents, whereby was granted to your orator, his

heirs or assigns, for the term of seventeen years from the
10 ninth day of April, in the year eighteen hundred and seventy-two (that being the date of the said surrendered letters patent), the full and exclusive right and liberty of making, using, and vending the said improvement, a description whereof was annexed to and formed a part of said reissued letters patent, as by reference to the same or a certified copy thereof, ready to be produced and proved as this honorable court shall direct, will more fully and at large appear.

IV.

And your orator further shows unto your honors that your orator, being a citizen of the United States, was the first and original inventor or discoverer of "a new and useful improvement in railway, track clearers," which said improvement was not known or used by others before the invention thereof by your orator, and not on sale for more than two years before his application for a patent thereon with his consent and allowance; and thereupon your orator applied to the Commissioner of Patents of the United States for letters patent for said improvement, and fully and in all
11 respects complied with all the requirements of the law in that behalf, and especially made oath that he verily believed himself to be the first and original inventor or discoverer of the said improvement, and also paid into the Treasury of the United States the sum of thirty-five dollars, and presented to the Commissioner of Patents of the United States a petition that letters patent might be granted him for his said invention or discovery; and also delivered and filed in the office of the said Commissioner of Patents a written description of his said improvement in such full, clear, and exact terms as to enable any person skilled in the art with which the same is most nearly connected to make and use the same, which said description was duly signed by your orator and attested by two witnesses; and thereupon the said Commissioner of Patents caused letters patent to be made out and issued in the name of the United States of America in due form of law in all respects, bearing date the eighth day of May, in the year eighteen hundred and
12 seventy-seven, and numbered 190,563, whereby was granted unto your orator, his heirs or assigns, for the term of seventeen years from the date thereof the full and exclusive right and liberty of making, using, and vending the said improvement, which is entitled in said letters patent "a new and useful improvement in railway track clearers," and the said letters patent, having been signed by the Secretary of the Interior of the United States and countersigned and sealed with the seal of the Patent Office by the Commissioner of Patents of the United States, and the same having been duly recorded, were delivered to your orator, as by reference to the same or a certified copy thereof, ready to be produced and proved as this honorable court shall direct, —.

And your orator further shows unto your honors that he is now and always has been the sole and exclusive owner of the said letters patent and of all the rights secured thereby.

V.

And your orator further shows unto your honors that, being such patentee and owner of the aforesaid letters patent, — filed his bill of complaint in the circuit court of the United States for the eastern district of Michigan against the Detroit City Railway Company, wherein was alleged that your orator, the complainant therein, had obtained the above-mentioned letters patent, and that the said Detroit City Railway Company had made, used, and sold the devices secured and claimed to the complainant in said cause, your orator, in infringement and derogation of the rights of said complainant, and that the said Detroit City Railway Company filed its answer to the said bill of complaint; that thereupon the said parties proceeded with the cause, and, after taking the proofs therein on both sides, the said cause was heard by the said court, and on the thirteenth day of June, A. D. 1881, rendered a decree that the complainant (your orator) was the first and original inventor of the improvement described and claimed in the letters patent set forth in the complainant's said bill of complaint, being the same letters patent set forth in this your orator's bill of complaint, and that the said defendant infringed the same, and that the complainant in said cause have a writ of injunction to restrain the said defendant from using the said improvement in track-cleaners, and that it be referred to a master to ascertain the complainant's damage, etc., as will more fully and at large appear from the said decree, or a certified copy thereof, ready to be produced and proved as this honorable court shall direct.

VI.

And your orator further shows unto your honors that he is now and always has been the sole and exclusive owner of the said letters patent and of all the rights secured thereby.

VII.

And your orator further shows unto your honors that your orator since the date of the said letters patent, has made and sold large numbers of railway track clearers and granted many licenses to use the same and derived large gains and profits therefrom and would have made still greater gains — profits therefrom if it had not been for the unlawful acts and doings of the said defendant, as hereinafter set forth.

VIII.

And your orator further shows unto your honors that the said defendant has, since the eighth day of May, 1877, and since the twenty-seventh day of August, 1878, unlawfully made and used large numbers of railway track clearers containing the said improvements so secured to your orators as aforesaid, and has made great gains and profits therefrom, and has thereby caused great loss and damage to your orator, to wit, in the sum of five thousand dollars; and that the said defendant refuses to pay to your orators any of the gains and profits it has made — such unlawful manufacture and use, or to desist from making or using such railway track cleaners in violation and infringement of your orator's rights secured to him as aforesaid and without his consent and allowance.

IX.

And your orator further shows unto your honors that the said de-
fendant uses the improvement described and claimed in the
16 two aforesaid letters patent combined in the device used by
the defendant attached to its cars for the purpose of cleaning
the railway track for the passage of the car.

X.

All of which actings and doings are contrary to equity and good conscience and tend to the manifest injury of your orator in the premises.

XI.

In consideration whereof and for as much as your orator can only have adequate relief in this honorable court, where matters and things of this kind are properly cognizable by statute, to the end, therefore, that the said defendant may, if it can, show why your orator should not have the relief hereby prayed, and may, according to *their* best and utmost knowledge, remembrance, information, and belief of its proper officers, full, true, direct, and perfect answer make to the matters and things hereinbefore stated and charged (answer under oath being waived).

XII.

And that the said defendant may answer the premises, and
17 that it may be decreed to account with and pay over to your
orator the profits which it, the said defendant, has or might
have made by its infringement of said several letters patent in such unlawful manufacture and use of such railway track clearers containing the improvements described in and secured to your orator by the aforesaid several letters patent.

XIII.

May it please your honors, the premises considered, to grant unto your orators a writ of injunction, issued out of and under the seal of this honorable court (or issued by one of your honors according to the form of the statutes in such case made and provided), enjoining and restraining the said The New Haven and Westville Horse Railroad Company, its clerks, attorneys, agents, servants, and workmen, from making, using, or vending the railway track clearers containing the improvements described and claimed in the aforesaid several letters patent.

XIV.

18 And that your orator may have such other and further relief as the nature of the case may require and to your honors may seem meet.

XV.

May it please your honors to grant unto your orator, not only the writ of injunction conformable to the prayer of this bill, but also a writ of subpœna, directed to the said The New Haven and Westville Horse Railroad Company, commanding it, on a day certain to be named therein, to be and appear in this honorable court, and then and there to answer the premises and to stand to, perform, and abide such further order, direction, and decree as may be made against it.

And your orator, as in duty bound, will ever pray, &c.

AUGUSTUS DAY.

SPRAGUE & HUNT,
Solicitors & of Counsel for Complainant.

19 UNITED STATES OF AMERICA,
Eastern District of Michigan, } *ss:*

At Detroit, in the county of Wayne and district aforesaid, on this 5th day of December, A. D. 1882, personally appeared before me the above-named Augustus Day, who, being duly sworn according to law, deposeth and says that he is the complainant in the foregoing bill and has read the same, and that he knows the contents thereof, and that the same is true of his own knowledge, except as to those matters and things therein stated on his information and belief, and as to those matters and things he believes them to be true.

[SEAL.] JNO. GRAVES,
U. S. Circuit Court Comm'r, East. Dist. Mich.

And on the same day Messrs. Sprague & Hunt, of Detroit, Mich., appeared for complainant, and on the 4th day of January, 1883, George H. Watrous, Esq., appeared for the defendant.

20 And on the 10th day of March, 1883, stipulation to amend bill of complaint was filed in the words and figures following, viz:

The Circuit Court of the United States for the District of Connecticut. In Equity.

AUGUSTUS DAY
vs.
FAIR HAVEN & WESTVILLE HORSE RAILROAD.

It is hereby stipulated and agreed that the complainants may amend *their* bill of complaint heretofore filed in this cause by striking out the word "horse" between the words "Westville" and "railroad" in the first, thirteenth, and fifteenth clauses of said bill without prejudice to any proceedings since the filing of said bill of complaint.

W. E. SIMONDS,
Defendant's Solicitor.

And on the same day amendment to bill of complaint was filed in the words and figures following, viz:

The Circuit Court of the United States for the District of Connecticut. In Equity.

21 AUGUSTUS DAY
vs.
FAIR HAVEN & WESTVILLE RAILROAD.

The complainant in the above-entitled cause hereby amends his bill of complaint heretofore filed in this cause by striking out the word "horse" where it occurs between the words "Westville" and "railroad" in the first, thirteenth, and fifteenth clauses of his said bill of complaint.

SPRAGUE & HUNT,
Sol'rs for Comp't & of Counsel.

And on the 24th day of March, 1883, defendant's answer was filed in the words and figures following, viz:

22 United States Circuit Court, District of Connecticut. In Equity.

AUGUSTUS DAY
v.
THE FAIR HAVEN AND WESTVILLE RAILROAD COMPANY.

The answer of The Fair Haven and Westville Railroad Company, defendant, to the bill of complaint of Augustus Day, complainant.

This defendant, saving and reserving to itself all and all manner of benefit of exception which may be had or taken to said bill of complaint on account of the errors and insufficiencies thereof, and particularly the right to except to said bill of complaint because of its multifariousness, makes answer to said bill of complaint as follows:

This respondent admits that pretended letters patent of these United States numbered 125,547 and dated April 9th, 1872, for an alleged improvement in track-cleaners were issued to said Augustus Day and said pretended letters patent were surrendered and reissued in and by reissued letters patent No. 8388, dated August 27th, 1878.

This respondent, on information and belief, denies that said Augustus Day was the first or original inventor of any patentable improvement forming the subject-matter of either said original or said reissued letters patent, and that said original letters patent were and said reissued letters patent are therefore null and void.

This defendant, on information and belief, in view of the state of the art as it existed at the time said Augustus Day made his said alleged improvements, denies that either of the matters or things said to have been originated by said Day and now claimed in said reissued patent amounts to an invention, and avers that the
23 same were the product of mere mechanical skill, and said reissued letters patent are therefore null and void.

This defendant, on information and belief, denies that there is any utility whatever in any matter or thing described and claimed as an invention in said reissued letters patent, and that said reissued letters patent are therefore null and void.

This defendant, on information and belief, avers that each of the alleged combinations claimed in said reissued letters patent is not a legal, actual, and patentable combination, but is a mere aggregation of mechanical features, and that each clause of claim of said reissued letters patent is therefore null and void.

This respondent, on information and belief, avers that said letters patent No. 125,547 were not inoperative or invalid by reason of such a defective or insufficient specification as was or could be lawfully corrected or amended by the surrender and reissue thereof as aforesaid; that said original letters patent were not surrendered to correct any error which had arisen by inadvertence, accident, or mistake; that new matter, not constituting any substantial part of the alleged invention for which said original letters patent were granted, was introduced and interpreted into the specification and claim of said reissued letters patent; that said reissued letters patent are not for the same invention as were said original letters patent; that said reissued letters patent contain broader claims of invention than were contained in said original letters patent; that said reissued letters patent were not applied for with due diligence after the issue of said original letters patent, and that therefore said reissued letters patent are null and void.

This defendant, on information and belief, avers that said reissued letters patent No. 8388 and said original letters patent No. 125,547 are and were null and void because that the alleged improvement forming the subject-matter thereof was in public use and on sale in this country more than two years prior to said Day's application for said original letters patent.

This defendant, on information and belief, avers that said reissued patent No. 8388 is null and void because that said Day was not the true and first inventor of the alleged improvements therein described and claimed, but that the same and all the material and substantial parts thereof were, long prior to any supposed invention thereof by said Day, patented and described in and by the following-mentioned printed publications and letters patent, to wit:

24 Letters patent of these United States to B. B. Scofield for improvement in plows, numbered 21630 and granted and dated September 28, 1858.

Letters patent of these United States to William Schnebly and Thomas Schnebly for improvement in harvesters, numbered 22203 and granted and dated November 30, 1858.

Letters patent of these United States to J. Sheridan for improvement in track-clearer, numbered 35066 and granted and dated April 22, 1862.

Letters patent of these United States to Job Johnson and Joseph B. Bolton for improvement in track-clearer, numbered 38229 and granted and dated April 21, 1863.

Letters patent of these United States to J. Sheridan for improvement in track-clearer, numbered 42411 and granted and dated April 19, 1864.

Letters patent of these United States to Samuel Hutchinson for improvement in gang plow, numbered 56942 and granted and dated August 7, 1866.

Letters patent of these United States to C. C. Elliott for improvement in track-clearer, numbered 62535 and granted and dated March 5, 1867.

Letters patent to H. J. Wattles for improvement in gang plow, numbered 68673 and granted and dated September 10, 1867.

Letters patent of these United States to E. B. Welles for improvement in track-clearer, numbered 73212 and granted and dated January 7, 1868.

Letters patent of these United States to Samuel A. Otis for improvement in track-clearer, numbered 78537 and granted and dated June 2, 1868.

Letters patent of these United States to John Fogarty for improvement in track-clearer, numbered 94587 and granted and dated September 7, 1869.

Letters patent of these United States to William F. Goodwin for improvement in harvesters, numbered 101,120 and granted and dated March 22, 1870.

25 Letters patent of these United States to John G. Perry for improvement in harvesters, numbered 104,489 and granted and dated June 21, 1870.

Letters patent of these United States to John G. Perry for improvement in harvesters, numbered 104,490 and granted and dated June 21, 1870.

Letters patent of these United States to Arnold Strauss for improvement in track-clearer, numbered 110,602 and granted and dated December 27, 1870.

This defendant, further answering on information and belief, says that said reissued patent No. 8388 is null and void because that said Day was not the original and first inventor of the alleged improvements set forth and claimed therein, but that the same and all the material and substantial parts thereof were, long prior to any supposed invention by said Day, known to and in public use by the following-named persons and parties at the following-mentioned places, to wit:

This respondent admits that pretended letters patent of these United States No. 190,563 and dated May 8, 1877, for alleged improvements in machines for cleaning railway tracks, were issued to said Augustus Day.

This respondent, on information and belief, denies the validity of said letters patent No. 190,563; denies that said Day was the first or original inventor of the alleged improvements set out in the patent last mentioned; denies that either of the said alleged improvements last mentioned has any utility, and denies that either of the said alleged improvements last mentioned is or ever was a patentable thing.

This defendant, on information and belief, avers that, in view of the state of the art as it existed at the time said Day made his alleged improvements set forth in patent numbered 190,563, neither of the things said to have been originated by said Day and now claimed in said patent last mentioned amounted to a patentable invention, but was the product of mere mechanical skill, and said patent last mentioned is therefore null and void.

26 This defendant, on information and belief, further answers and says that said letters patent No. 190,563 are null and void, because that said Day was not the true and first inventor of the alleged improvements therein described and claimed, but that the same and all the material and substantial parts thereof were, long prior to any supposed invention thereof by said Day, patented and described in and by the following mentioned printed publications and letters patent, to wit:

United States patent, No. 42411, to James Sheridan, granted and dated April 19, 1864.

United States patent, No. 62535, to C. C. Elliott, granted and dated March 5, 1867.

United States patent, No. 78537, to Samuel A. Otis, granted and dated June 2, 1868.

United States patent to James N. Clark, No. 189,696, granted and dated April 17, 1877.

This defendant, further answering on information and belief, says that said letters patent numbered 190,563 are null and void, because that said Day was not the original and first inventor of the alleged improvements set forth and claimed therein, but that the same and all the material and substantial parts thereof were, long prior to any supposed invention thereof by said Day, known to and in public use by the following-named persons and parties at the following-mentioned places, to wit:

James N. Clark, of Cleveland, Ohio, at said Cleveland.

This defendant, further answering on information and belief, avers that each of the alleged combinations claimed in said letters patent No. 190,563 is not a lawful, actual, and patentable combination, but is a mere aggregation of mechanical features, and that each clause of claim in said patent last mentioned is therefore null and void.

This defendant, on information and belief, avers that said letters patent No. 190,563 are null and void, because that the alleged improvements forming the subject-matter thereof was in public use and on sale in this country for more than two years prior to said Day's application therefor.

27 This defendant, on information and belief, avers that said original letters patent No. 125,547, said reissued letters patent No. 8388, and said original letters patent No 190,563 are null and void, because that the same were surreptitiously and unjustly obtained for that which was in fact invented by another and by others who were using reasonable diligence to adapt and perfect the same, to wit, James N. Clark, of Cleveland, in the State of Ohio, at said Cleveland.

This defendant, on information and belief, avers that said complainant cannot recover of this defendant any damages for infringement of said reissued patent No. 8388 or said patent No. 190,563, because that said complainant has not fixed upon the articles made and sold under either of said patents last mentioned the word "patented," together with the day and year the two patents last mentioned were granted.

This defendant, on information and belief, avers that said original letters patent No. 125,547 and said reissued letters patent No. 8388 and said original letters patent No. 190,563 are and were null and void, because that the alleged inventions described therein were not orignated or discovered by said Day, but were communicated to him by other persons.

This defendant further answers and says that the devices for cleaning or clearing railway tracks used by defendant are made under the sanction and by the permission of the owners of letters patent of these United States, as hereinafter mentioned, covering inventions which are substantially different from the alleged inventions of said Augustus Day, and also covering inventions which were originated prior to the said supposed inventions of said Augustus Day, which said letters patent under which this defendant operates are as follows, to wit:

Patent to James Sheridan, No. 42411, granted and dated April 19, 1864.

Patent to C. C. Elliott, No. 62535, granted and dated March 5, 1867.

Patent to S. A. Otis, No. 78537, granted and dated June 2, 1868.

28 Patent to James N. Clark, No. 189,696, granted and dated April 17, 1877.

This defendant, on information and belief, denies that there has ever been any *bona fide* adjudication by any court of these United States wherein it has been decided that said reissued letters patent No. 8388 are valid, or wherein it has been decided that said letters patent No. 190,563 are valid, or wherein it has been decided that any such apparatus as is used by this defendant infringes either said reissued letters patent No. 8388 or said original letters patent No. 190,563, and that the adjudication mentioned in said complainant's bill of complaint, if it was ever made or ever existed, has no application as regards the facts and questions of law in issue in this present case; and that since the date of adjudication mentioned in said complainant's bill of complaint the Supreme Court of these

United States has made adjudications with reference to reissue patents which destroy the force of any adjudication theretofore made upon said reissued letters patent No. 8388.

This defendant, further answering on information and belief, denies that it has ever infringed said reissued patent No. 8388; denies that it has ever infringed said original letters patent No. 190,563; denies that it has infringed upon any rights whatever of said complainant; denies said complainant's right to any accounting of damages, profits, or costs to be recovered from this defendant; denies said complainant's right to any injunction, provisional or perpetual, against this defendant; and denies that said complainant is entitled to any other or further relief whatever against this defendant.

All of which matters and things this defendant is ready to aver, maintain, and prove as this honorable court shall direct, and hereby prays to be hence dismissed with its reasonable costs and charges wrongfully in this behalf sustained.

And, as in duty bound, this defendant will ever pray, etc.

THE FAIR HAVEN AND WESTVILLE RAILROAD CO.,
By HOADLEY B. IVES, *President.*

WM. EDGAR SIMONDS
(*Of Hartford, Conn.*), *Solicitor and of Counsel for said Defendant.*

29 *Oath.*

STATE OF CONNECTICUT,
County of New Haven, } *ss:*

TOWN OF NEW HAVEN, *February 26th,* 1883.

Hoadley B. Ives, being duly sworn, says that he is the president of the defendant corporation in the above-entitled cause; that he has read the foregoing answer and knows the contents thereof, and that the same is true of *its* own knowledge, except as to those matters therein stated on information and belief, and as to those matters he believes it to be true.

Sworn to this 26th day of February, 1883, before me, at New Haven, in said county and State.

JULIUS TWISS,
Notary Public.

And on the 1st day of May, 1883, replication was filed in the words and figures following, viz:

30 *Replication.*

The Circuit Court of the United States for the District of Connecticut. In Equity.

Augustus Day
vs.
Fair Haven & Westville Railroad Company.

The replication of the above-named complainant to the answer of The Fair Haven & Westville Railroad Company, defendant.

This repliant, saving and reserving to himself, now and at all times hereafter, all and all manner of benefit and advantage of exception which may be had or taken to the manifold insufficiencies of the said answer, for replication thereunto says that he will ever maintain and prove his bill of complain*ant* to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the said defendant is uncertain, untrue, and insufficient to be replied unto by this repliant, without this, that any other matter or thing whatsoever in the said answer contained material or effectual in the law to be replied unto and not herein and hereby well and sufficiently replied unto, confessed and avoided, traversed or denied, is true; all which matters and things this repliant is and will be ready to aver, maintain, and prove as this honorable court shall direct, and humbly prays as in and by his said bill he has already prayed.

SPRAGUE & HUNT,
Solicitors for Complainant.

31 And on the 14th day of May, 1883, stipulation amending answer was filed in the words and figures following, viz:

Stipulation.

United States Circuit Court, District of Connecticut. In Equity.

Augustus Day
vs.
The Fair Haven and Westville Railroad Company.

It is stipulated between counsel for complainant and defendant that defendant's answer in this case be, and hereby is, amended
32 by inserting at the close of the matter on page 5 of that answer, also at the close of the matter on page 8 of that answer, and also at the close of the matter on page 10 of that answer the following: "Letters patent of these United States to Job Johnson and Joseph B. Bolton, granted and dated April 21, 1863, No. 38229; letters patent of these United States to Benjamin Folsom,

granted and dated April 17, 1866, No. 53968; letters patent of these United States to John Callahan, granted and dated July 28, 1868, No. 80331."

This stipulation dated May 8, 1883.

SPRAGUE & HUNT,
Complainant's Solicitors & of Counsel.

W. E. SIMONDS,
Defendant's Solicitor and of Counsel.

And on the 2nd day of June, 1883, motion for bond for costs was filed in the words and figures following, viz:

United States Circuit Court, District of Connecticut. In Equity.

AUGUSTUS DAY
vs.
33 THE FAIR HAVEN AND WESTVILLE RAILROAD COMPANY.

Messrs. Sprague & Hunt, complainant's solicitors, Detroit, Michigan.

GENTLEMEN: Please take notice that at ten o'clock in the forenoon, or as soon thereafter as counsel can be heard, on Monday, the fourth day of June, A. D. 1883, at the chambers of the judges of said court, in Hartford, Connecticut, said defendants will move said court to order and decree that said complainants shall give to said defendants a bond, to be approved by said court, securing to said defendants their costs and charges in case said defendants shall prevail in said cause.

Yours truly,
W. E. SIMONDS,
Defendant's Solicitor.

Service accepted this twenty-eighth day of May, A. D. 1883.

SPRAGUE & HUNT,
Comp't's Sol'rs.

34 And on the 5th day of September, 1883, bond was filed in the words and figures following, viz:

Know all men by these presents that I, Mark Howard, of the city of Hartford, State of Connecticut, am held and firmly bound unto the Fair Haven & Westville Railroad Co., a corporation organized under the laws of the State of Connecticut, in the sum of two hundred dollars, lawful money of the United States of America, to be paid to the said Fair Haven & Westville Railroad Co., or to its certain attorney, successors, administrators, or assigns; to which payment, well and truly to be made, I hereby bind my heirs, executors, and administrators, and each and every of them, firmly by these presents.

Sealed with my seal. Dated the third day of September, one thousand eight hundred and eighty-three.

The condition of this obligation is such that whereas Augustus Day, of the city of Detroit, county of Wayne and State of Michigan, has filed his bill of complaint in the circuit court of the United States for the district of Connecticut, in equity, against the said Fair Haven & Westville Railroad Co.:

35 Now, therefore, if the said Augustus Day shall well and truly pay all such costs and charges as may be decreed against him in said suit, then this obligation shall become null and void; otherwise to remain in full force and virtue.

MARK HOWARD. [SEAL.]

Subscribed and acknowledged before me this 5th day of September, A. D. 1883.

E. E. MARVIN,
U. S. Com'r.

And on the 17th day of September, 1883, stipulation amending answer was filed in the words and figures following, viz:

Stipulation.

United States Circuit Court, District of Connecticut.

AUGUSTUS DAY
v.
THE FAIR HAVEN AND WESTVILLE RAILROAD COMPANY.

It is stipulated by and between the parties to the above cause that defendant's answer as already filed in this suit be, and hereby is, amended as follows:

36 First. By inserting at the end of the matter on page 5 of said answer and also at the end of the matter on page 8 of said answer the following:

"United States patent No. 31529, to Robert Cassady and Daniel Clark, granted and dated February 26, 1861.

United States patent to Job Johnson and Joseph B. Bolton, No. 38229, granted and dated April 26, 1863.

United States patent to John Callaghan, No. 80331, granted and dated July 28, 1868.

United States patent to Benjamin Folsom, No. 53968, granted and dated April 17, 1866," without prejudice to what has heretofore been done in the case.

Dated September 11, 1883.

W. E. SIMONDS,
Defendant's Solicitor.
SPRAGUE & HUNT,
Compl't's Solicitor.

37 And on the 30th day of December, A. D. 1884, the following stipulation and complainant's & defendant's proofs taken in conformity thereto were filed in court as follows, viz:

The United States Circuit Court for the District of Connecticut. In Equity.

AUGUSTUS DAY

vs.

THE FAIR HAVEN & WESTVILLE RAILROAD COMPANY.

It is hereby stipulated in the above-entitled cause that the evidence to be taken therein may be taken before any notary public authorized to take such evidence by the United States statutes in such cases made and provided.

June 1, 1883.

SPRAGUE & HUNT,
Complainant's Solicitors.
W. E. SIMONDS,
Defendant's Solicitor.

38 The Circuit Court of the United States for the District of Connecticut. In Equity.

AUGUSTUS DAY

vs.

FAIR HAVEN & WESTVILLE RAILROAD COMPANY.

Testimony introduced on behalf of Augustus Day and depositions taken by consent this 3rd day of October, 1883, at Detroit, Michigan.

Present: Thomas S. Sprague, Esq., of Sprague & Hunt, solicitors for complainant, and William E. Simonds, Esq., solicitor for defendant.

AUGUSTUS DAY, being duly sworn, says, in answer to interrogatories, as follows:

Examination by Mr. SPRAGUE:

Q. 1. State your name, age, residence, and occupation.

Ans. Augustus Day; 62 years of age; Detroit, Michigan; occupation, inventor and manufacturer.

Q. 2. Do you know the defendant corporation?

A. I do.

Q. 3. Are you acquainted with the devices used by the defendant corporation upon their cars for the purpose of clearing obstructions from railroad tracks?

A. I am.

Q. 4. Have you made a model representing the devices used by the defendant for that purpose; and, if so, will you produce it?

A. I have. (Witness produces model.)

39 Counsel for complainant introduced model referred to by the witness, and the same was received and marked Complainant's Exhibit A.

Q. 5. Examine the model, Complainant's Exhibit A, and describe the similarity or dissimilarity, if such exists, between it and the devices employed by the defendant corporation.

A. It is substantially the same thing, so far as I am capable of making it, without taking measures and proportions.

Cross-examination by Mr. SIMONDS:

Q. 6. When did you see the devices you refer to as being used by the defendant corporation?

A. I saw them last winter; that is the last time, I believe. I have seen them several times.

Q. 7. At what date last did you see them last winter?

A. Well, I can't tell you the date.

Q. 8. Give me the month.

A. I think it was in November. I am not positive about that, but I think it was in November; it might have been in December. My impression is that it was in November.

Q. 9. Was it before this suit was brought?

A. Yes, sir; it was.

Q. 10. Where did you see such device?

A. On their cars in New Haven.

Q. 11. On how many different cars?

A. I didn't count them; on quite a number of cars.

Q. 12. Were such devices of this sort as you saw all alike in their construction?

A. Seemingly so.

Q. 13. And are you confident that Exhibit A faithfully represents those devices?

A. I am, sir; substantially that is the way they are; they might some of them have been out of repair and bent in a different shape.

Q. 14. Particularly did those devices used by the defendant corporation have the straight draw bar extending backward from the rock shaft near the side of the car?

40 A. They seemed to be just straight; they might possibly have been a little in; they might possibly have been a little trifle on an angle.

Q. 15. Are you confident that in those devices of the defendant there was both the straight draw bar near the side of the car and also the diagonal brace or support?

A. I am.

Q. 16. Did you see those devices of defendant used at all?

A. I don't remember whether I saw them on the rail or not.

Q. 17. Did you examine those devices of defendant carefully enough to know how they operate?

A. I did.

Q. 18. Were the supports which attached the scrapers (in defendant's device) to the rock shaft elastic supports?

A. Well, they might have been somewhat elastic. They were made of iron, and were made flat, and, of course, they would be elastic. There would be a spring to the whole work, more or less, I suppose.

Q. 19. Were they of iron or of steel?

A. I could not say as to that.

Q. 20. You are satisfied, are you not, that in those devices of defendant the scrapers were not intended to rest upon the track wholly by their own weight?

A. I should judge they were not.

Q. 21. You are satisfied, are you not, that in those devices of defendant the scrapers were intended to be pressed down upon the track with an elastic pressure and held there by the ratchet and stop?

A. As to the elastic pressure I do not know about that, but I am satisfied they were held by the ratchet and stop connected with a lever. The whole work was, more or less, capable of springing.

AUGUSTUS DAY.

41 UNITED STATES OF AMERICA,
Eastern District of Michigan, } *ss:*

I hereby certify that Augustus Day, the above-named witness, who signed the foregoing deposition, was by me duly sworn to make true answers to such interrogatories as might be propounded to him in the above-entitled cause this 3rd day of October, 1883, at Detroit, Michigan.

[L. S.] H. S. SPRAGUE,
Notary Public in and for the County of Wayne,
in said Eastern District of Michigan.

It is stipulated between the parties hereto that the complainant seeks to make no recovery under his patent 190,563, dated May 8, 1877, and the complainant does not seek to recover except under the 4th claim of reissued patent No. 8388, and this stipulation shall have the same effect as though complainant amended his bill in these particulars.

ISAAC DE GRAFF, a witness produced on behalf of the complainant, having been duly sworn, deposes and says, in answer to interrogatories, as follows:

Examined by Col. SPRAGUE:

Q. 22. Will you state your name, age, residence, and occupation?

A. My name is Isaac De Graff; residence, Detroit; age, 48; business, mechanical engineer and manufacturer.

Q. 23. How long have you been engaged in the business of your profession?

A. My first connection with the business was in 1851 and has been continuous, with the exception of three or four years during the war.

42 Q. 24. Are you accustomed to reading and interpreting drawings and comparing machinery with such drawings and determining the similarity between the two?

A. Yes, sir.

Counsel for complainant introduces in evidence a copy of reissued patent No. 8388, dated August 27, 1878, and the same was received and marked Complainant's Exhibit B.

Q. 25. Will you look at this patent—the drawings, specification, and especially the 4th claim—and tell us whether you understand the construction and operation of the device therein described?
A. I do.

Complainant's counsel offered in evidence a model, which was marked Complainant's Exhibit C.

Q. 26. Will you compare Complainant's Exhibit C, model, with the fourth claim of Complainant's Exhibit B, patent, and tell us whether or not the model is a substantial representation of the devices described in that claim?
A. It is, in my judgment.
Q. 27. I ask you now to compare Complainant's Exhibit A with the fourth claim of Complainant's Exhibit B and tell us whether or not you find the elements described in said claim in Exhibit A.
A. I find parts corresponding to the draw bar C, the blade A, and the diagonal brace E, as shown in the drawing and described in claim four (4).
Q. 28. State whether or not, in your opinion, the arrangement of the elements you have named in Complainant's Exhibit B perform substantially the same functions as the corresponding elements named in the 4th clause of the claim in Complainant's Exhibit A.
A. So far as I can see they do.

Cross-examination by Mr. Simonds:

Q. 29. Please to state fully and exhaustively each and every utility which flows in complainant's patented device from the presence of the combination of the draw bar C, scraper A, and the diagonal brace.
A. As I understand the action of those parts, the draw bar C per-
forms the office of drawing the blade A along the track, and
43 in the performance of that office it is assisted by the brace E,
but that brace also performs another office—that of preventing the blade A from being removed from the track by the side thrust—and, in my judgment, that is the whole office of the different parts.
Q. 30. Then, in your judgment, the special utility of the diagonal brace E is that of strengthening and supporting the scrape against a side thrust; is that correct?
A. It performs both offices; you cannot separate the one from the other. It assists in the direct draft, and at the same time acts as a brace to resist the side thrust.
Q. 31. Do you consider either of those offices more important than the other, practically?
A. Yes; I think, in view of the fact that there is a direct line of strain through the draw bar C, that the most important office of the

diagonal brace is to prevent lateral movement of the blade A from the track.

Q. 32. You will observe that casting which in complainant's patent is marked B is absent from the combination set out in this 4th claim. When the device is constructed so as to have the scraper pivoted underneath the car in distinction from having it supported upon the rocking shaft, that casting B performs a special office and has a special utility, has it not, in that it affords sockets for the ends of the direct and diagonal draw bars and preserves them in their lines of direction?

A. I should understand that it was the spirit and intention of that clause that for the purpose of explanation that the part B and the part A were considered as forming one whole, under the general name A.

Q. 33. Even if you consider that the parts A and B are of one structure, substantially, when the scrapers are pivoted as they are in complainant's patent in distinction from being attached to a rocking shaft as they are in Complainant's Exhibit A, the sockets which are on top of B have the special utility of preserving the direct and diagonal draw bars in proper lines of direction, have they not?

A. I don't think that the fastenings are essential at all, so
44 long as they are fastened so that they act as the spirit of the
patent shows they are intended to.

Q. 34. Then, as I understand you, the improvement described in complainant's reissued patent recited in the 4th claim is present in substance, whether the manner of pivoting be such as is shown in the patent or be such as is shown in Complainant's Exhibit A?

A. I think so, sir.

Q. 35. And is also present whether or not the part B be present?

A. It is my judgment that in considering the office performed by the draw bar C and brace E that not only the part B but the blade A might be left out of the question; the offices of the draw bar C and brace E are the same, in my judgment, in both cases if attached to any blade in any way that I could imagine so long as the attachment is made.

ISAAC DE GRAFF.

UNITED STATES OF AMERICA, }
Eastern District of Michigan, } *ss:*

I hereby certify that Isaac De Graff, the above-named witness, who signed the foregoing deposition, was by me duly sworn to make true answers to such interrogatories as might be propounded to him in the above-entitled cause this 3rd day of October, 1883, at Detroit, Michigan.

[L. S.] H. S. SPRAGUE,
Notary Public in and for the County of Wayne,
in said Eastern District of Michigan.

Complainant offered in evidence a certified copy of a decree in the United States circuit court for the eastern district of Michigan, in the case of Day *vs.* Detroit City Railway Company, a copy of such decree to be found on page 946 of the 22nd Official Gazette.

45 The Circuit Court of the United States for the District of Connecticut. In Equity.

AUGUSTUS DAY

vs.

FAIR HAVEN & WESTVILLE RAILROAD COMPANY.

Testimony taken on behalf of the complainant under the 67th rule in equity of the United *Stated* States Supreme Court, as amended, before Henry S. Sprague, a notary public in and for the county of Wayne, in the State of Michigan, at the office of Sprague & Hunt, No. 37 Congress street west, Detroit, Michigan, commencing on Wednesday, August 27th, 1884, at 10 o'clock in the forenoon, pursuant to agreement.

Present: Sprague & Hunt, counsel for the complainant, and W. E. Simonds, Esq., counsel for defendant.

ISAAC DE GRAFF, first being duly cautioned, was sworn, and testified, in answer to interrogatories propounded to him, as follows:

Examined by SPRAGUE & HUNT:

Q. 1. Mr. De Graff, was you formerly sworn as a witness in this case?

A. Yes, sir.

Q. 2. Will you look at the reissued patent No. 8388, dated August 27, 1878, issued to Augustus Day, and state if you have read and examined the same and understand the 4th claim of said patent and what such claim is for?

Objected to as incompetent.

46 A. The claim is for the combination, with the draw bar C and scraper A, of the diagonal brace E, as and for the purpose set forth. I have read the specification.

Q. 3. Will you look at the patent of D. B. Scofield for a wheeled plow patented September 28, 1858, and state if you find in such patent the device covered by the 4th claim of the Day reissue?

Same objection.

A. I do not.

Q. 4. Will you look at the patent of J. Sheridan, No. 35066, dated April 22nd, 1862, and state if you find in that the device claimed in the 4th claim of the Day reissue?

Same objection.

A. I do not.

Q. 5. Will you look at the Johnston & Bolton patent, track-clearer, No. 38229, and state if you find in that patent the device claimed in the 4th claim of the Day reissue?

Same objection.

A. I do not.

Q. 6. Will you look at the patent of S. Hutchinson, a gang plow, No. 56942, and state whether or not you find the device set forth in the 4th claim of the Day reissue?

A. I do not.

Q. 7. Will you look at the patent to C. C. Elliott, No. 62535, and state if you find in that patent the device claimed in the fourth claim of the Day reissue?

Same objection.

A. I do not find any such device.

Q. 8. Will you look at the patent of E. R. Wells, No. 72212, and state if you find in that patent or not the device claimed in the fourth claim of the Day reissue?

Same objection.

A. I do not.

Q. 9. Will you look at the patent of Samuel A. Otis, No. 78537, and state if you find in that patent the device claimed in the fourth claim of the Day reissue?

Same objection.

A. I do not.

47 Q. 10. Will you look at the patent of H. J. Wattles, No. 68673, and state if you find in that patent the device claimed in the fourth claim of the Day reissue?

Same objection.

A. I do not.

Q. 11. Will you look at the Schnevly patent, the Goodwin patent, and the two Perry patents, being for mowers and harvesters, and state if you find in them the device claimed in the fourth claim of the Day reissue?

Same objection.

A. I do not find the device in any of them.

Cross-examination by Mr. SIMONDS:

Q. 12. In your view of the matter, is the shank B, described in the Day reissue patent, essential to the presence of the improvement described in the Day reissue and referred to in the 4th claim?

A. I consider it as merely a mechanical convenience for fastening the parts mentioned in the claim rigidly together. I can explain that more fully by saying that Mr. Day now makes them without the presence of the part B as a separate piece.

Q. 13. In your view of the matter, is it or not essential to the presence of the improvement described in the Day reissue and recited in the fourth claim that the draw bar C and diagonal brace E should be pivoted at their front ends independently of each other?

A. I do not consider that it is material how they are pivoted, so that the pivotal action is on the same center line, horizontally in one direction and at right angles with the line of motion of the car in the other.

Q. 14. Is even that essential?

A. I consider that it is essential that they shall be pivoted so that in lifting the scraper shall be raised, if I may so express it, vertically from the track—in other words, so that when the scraper is lifted from the track it shall not be moved laterally in either direction.

Q. 15. Then you would attach to the fourth claim, by construction, the condition, as to these pivots being "on the same axial line," that is expressed in words in second claim?

48 A. I should consider it essential that that should act on the same axial line.

ISAAC DE GRAFF.

ADOLPH BARTHEL, being duly sworn, testified, in answer to interrogatories propounded to him, as follows:

Examined by SPRAGUE & HUNT:

Q. 16. What is your name, age, residence, and occupation?

A. My name is Adolph Barthel; 39 years old; live in Detroit, and am a mechanical engineer and expert.

Q. 17. Mr. Barthel, will you state at what schools you were educated and how you prepared yourself to become a mechanical engineer and expert?

A. I graduated from a school of arts; I graduated at a polytechnic school; graduated from the German military academy; served as engineer in the German army and have for 16 years followed the profession of mechanical engineer and expert.

Q. 18. Will you look at the patent of Augustus Day, track-clearer, No. 8388, and state if you have read the same and understand what is covered by the fourth claim thereof and state what said fourth claim consists of?

A. I have read this patent and I think I understand it. The fourth claim contains the combination, with the draw bar C and scraper A, of the diagonal brace E, as and for the purposes set forth. I think I understand the claim.

Q. 19. Will you look at the patent to D. B. Scofield, wheel plow, No. 21630, and state if you find in such patent the device covered by the fourth claim of the Day reissue?

Objected to as incompetent.

A. I do not.

Q. 20. Will you look at the patent to J. Sheridan, No. 35066, dated April 22nd, 1862, and state if you find in that patent the device covered by the fourth claim of the Day reissue?

Same objection.

A. His patent is for a track-clearer, but does not contain the device claimed in the fourth claim of the Day patent.

49 Q. 21. Will you look at the Johnstone and Bolton patent, No. 38229, and state whether or not you find in that patent the device covered by the fourth claim of the Day reissue?

Same objection.

A. His patent is for a track-clearer, but there is no such device used as described in Day's reissued patent and claimed in the fourth claim thereof.

Q. 22. Will you look at the patent to S. Hutchinson, gang plow, No. 56942, and state if you find in that patent the device covered by the fourth claim of the Day patent?

Same objection.

A. This patent is for a gang plow, and I do not find a single element of the claim referred to in Day's reissued patent.

Q. 23. Will you look at the patent of C. C. Elliott, No. 62535, car track clearer, and state if you find in that patent the device covered by the fourth claim of the Day patent?

Same objection.

A. I find in that patent but one of the elements claimed in the fourth claim of the Day reissued patent and no device that could be construed to refer to the 4th claim of Day's reissued patent.

Q. 24. Will you look at the patent of H. J. Wattels, No. 68673, and state if you find in such patent the device claimed in the fourth claim of the Day reissue?

Same objection.

A. This patent is for an improvement in gang plows, and there is no combination of elements to compose a device similar to that referred to in the fourth claim of the Day reissued patent.

Q. 25. Will you look at the patent of E. B. Wells, No. 73212, and state if you find in that patent the device covered by the fourth claim of the Day patent?

Same objection.

A. This patent is for an improvement in scraper attachments to cars and contains some of the elements of the Day reissue patent, but there is no such combination of parts as claimed in the fourth claim of Day's reissued patent.

50 Q. 26. Will you look at the patent of Samuel A. Otis, No. 73537, and state if you find in that patent the device claimed in the fourth claim of the Day reissue?

Same objection.

A. No; I do not. I do not think there are elements in this Otis patent which correspond with the elements cited in the combination described in the fourth claim of Day's reissue.

Q. 27. Will you look at the Schnevly patent, the Goodwin patent, the two Perry patents, for harvesters and mowers, and state if you find in either of them the device covered by the fourth claim of the Day reissue?

Same objection.

A. These patents are for mowers and harvesters, and I do not find in any one the combination of elements that would present a like or a similar device to that described in the Day reissue patent and claimed in the fourth claim thereof.

Cross-examination by Mr. SIMONDS:

Q. 28. Is it essential to the presence of the improvement described in the Day reissue and recited in the fourth claim that the scraper should be that particular kind of scraper which is shown in the drawings of the Day reissue and therein lettered A?

A. As far as the fourth claim of the Day reissue patent is concerned it is not essential at all how the scraper A is constructed.

Q. 29. Is it essential to the presence of the improvement described in the Day reissue and recited in the fourth claim that the shank B should be present?

A. No; I do not think it is. The presence of the shank B is immaterial as far as the fourth claim is concerned, and forms nothing but a part of the scraper. It is obviously used in connection therewith to get greater facilities for construction and connecting the same with the brace and draw bar, and it clearly would not alter the function of the device if the draw bar and brace were directly attached to the scraper without the intermission of the shank.

Q. 30. What is that element of the Day improvement that you find in the Elliott patent?

A. The Elliott patent has a scraper.

Q. 31. Is it essential to the presence of the improvement described in the Day reissue and recited in the fourth claim
51 that the forward ends of the draw bar and diagonal brace be pivoted independently of each other?

A. No; there is no such necessity. Both are secured to one object—that is, the scraper—and if one is turned upon its pivot the other is turned in the same degree. Therefore, if the pivotal point of the two were connected by a shaft, the parts would operate in the same manner.

Q. 32. Relative to the improvement described in the Day reissue in suit and recited in the fourth claim, what is the whole function of the diagonal brace E?

A. It is to firmly brace the track-clearer against any possible side motion created by the angular position with which it acts upon the obstructions when drawn along the track. It is clear that a great portion of the resistance which the debris or obstacles exert upon the blade of the track-clearer will create a heavy lateral pressure, which has to be resisted entirely by the lateral brace. In addition to this function the lateral brace has to accommodate itself to the vibrations of the draw bar, created by a rise or fall in the track; it is therefore necessary that both be upon the same plane, so that they may swing together. The way the draw bar and the brace are combined with the scraper in the Day patent the brace as such is always effective, no matter whether the scraper raises or lowers from the car.

Q. 33. Is it perfectly easy in the device of the Day reissue to make the draw bar C large enough to furnish all requisite strength for drawing the scraper?

A. I don't think it has anything to do with the principle of construction involved in the fourth claim, and I think it is merely a matter of proper proportion and arrangements of the parts to effect the desired purpose.

Q. 34. Can you easily make the draw bar C large enough to draw the scraper?

A. I think the construction is adapted to admit any size of draw bar.

Q. 35. In the device of the Scofield patent are the plow beam A and the brace J pivoted on the same axial line, to wit, the axis of the wheels.

52 A. They are not pivoted at all.

Q. 36. Is the beam A free to rise and fall at the front end?

A. Certainly.

Q. 37. Where there is pivot?

A. It is combined with a rolling axle, but an object to raise or fall at one end does not necessarily need a pivot.

Q. Is the brace J also combined with the same rolling axle?

A. Yes.

Q. 38. Does the brace J tend to prevent lateral displacement of the plow as it rises and falls?

A. No; the rising and falling of the plow is controlled by different devices, viz., the lever H, operated by the plowman from his seat.

Q. 40. Independently from the adjustment of the plow, wherein the lever H is used, does not the plow rise and fall with the plow beam, vibrating, as you call it, with the rolling axle A?

A. Certainly it does.

Q. 41. And in such vibration of the plow does or not the diagonal brace J tend to prevent lateral displacement of the plow?

A. No; it does not. That lateral brace J is simply used, as in thousands of other plows and vehicles of all kinds, to combine the outer end of the axle to the draft pole, as the draft is all on one side of the vehicle, and without such brace no stiff truck could be obtained.

Q. 42. In the device of the Goodwin patent does the diagonal brace C^4, interposed between the rolling axle B and the part marked in the drawings C^3, tend to prevent lateral displacement of the finger bar M and its appurtenances?

A. There is no lateral displacement of the bar M that I can see, as it moves at right angles across the line of draft, but whether it may act or not as a brace or strut depends altogether upon the action of the draft upon the structure.

Q. 43. If in the use of the device of the Goodwin patent there is a tendency to lateral displacement of the finger bar M, then diagonal brace C^4 tends to prevent such lateral displacement, does it not?

A. Yes; to a small extent.

ADOLPH BARTHEL.

53 UNITED STATES OF AMERICA,
Eastern District of Michigan, } *ss:*

I, Henry S. Sprague, a notary public in and for the county of Wayne and State of Michigan, do hereby certify that on the 27th day of August, A. D. 1884, appeared before me the above-named Isaac De Graff and Adolph Barthel, witnesses, who, being by me first severally duly sworn according to law to testify the truth, the whole truth, and nothing but the truth relating to said cause, gave the above testimony, which was reduced to writing and was read over by the witnesses, who signed the same in my presence and made oath to the truth thereof.

[L. S.] H. S. SPRAGUE,
Notary Public, Wayne County, Michigan.

The complainants close *their* testimony.

54 *Infringement—Patent No.* 190,563 *and Reissue No.* 8388.
Decided June 30*th*, 1880.

United States Circuit Court, Eastern District of Michigan.

DAY *vs.* DETROIT CITY RAILWAY COMPANY.

Defendant held to infringe Day's patent No. 190,563, May 8, 1877, and reissue patent No. 8388, August 27, 1878, for railway track clearers.

Messrs. Sprague & Hunt, for the complainant; Mr. Geo. H. Lothrop, for the defendant.

BROWN, *D. J.:*

This cause having been heretofore heard on argument by counsel for the respective parties on the pleadings and proofs, and the court having considered the same and being of the opinion that the complainant was the first and original inventor of the railway track clearers such as are described in his reissued patent No. 8388, dated August 27, 1878, and also that he was the first and original inventor of the railway track clearers such as are described in his patent dated May 8, 1877, and numbered 190,563, and claimed in the first clause of the claims of said patent, adjudges and decrees that the defendant has infringed the said reissue patent No. 8388 in making and using railway track clearers containing—

55 1. In a railway car, a pair of independently acting scrapers, pivotally secured to the floor of the same and resting upon the track, when in operation, wholly by their own weight, in combination with means for raising and lowering such scrapers simultaneously, substantially as and for the purpose set forth.

2. In a track-cleaning device, the combination, with an independently acting scraper resting, when in operation, wholly by its own weight upon the track, of a draw bar in the direct line of draft and a supplementary and diagonal draw bar, which at the same time acts as a brace, the forward ends of both of said draw bars being secured on the same axial line, substantially as and for the purpose set forth.

3. The construction and arrangement of the shank B, as described, with relation to scraper A, draw bar C, and diagonal brace E, as and for the purposes set forth.

4. The combination, with the draw bar C and scraper A, of the diagonal brace E, as and for the purpose set forth.

7. The combination, with the pivoted track-cleaning scrapers, of chain J, pulley K, and cranked shaft P for raising and lowering the scrapers, substantially as described.

And also that the defendant has infringed the said patent No. 190,563 in making and using railway track scrapers containing—

1. The adjustable bracket E, in combination with the leader C and brace D and scraper, substantially as and for the purpose described.

As charged in the said bill of complaint, and that the said complainant is entitled to have a perpetual injunction to restrain said defendant, its agents, servants, and workmen and all claiming or holding under or through it, from making, using, or vending or in any manner disposing of railway track clearers embracing the invention or improvements described in said letters patent, viz:

1. In a railway car, a pair of independently acting scrapers pivotally secured to the floor of the same and resting upon the track, when in operation, wholly by their own weight, in combination with means for raising and lowering such scrapers simultaneously, substantially as and for the purpose set forth.

56 2. In a track-cleaning device, the combination, with an independently acting scraper resting, when in operation, wholly by its own weight upon the track, of a draw bar in the direct line of draft and a supplementary and diagonal draw bar, which at the same time acts as a brace, the forward ends of both of said draw bars being secured on the same axial line, substantially as and for the purpose set forth.

3. The construction and arrangement of the shank B, as described, with relation to scraper A, draw bar C, and diagonal brace E, as and for the purposes set forth.

4. The combination, with the draw bar C and scraper A, of the diagonal brace E, as and for the purpose set forth.

* * * * * * *

7. The combination, with the pivoted track-cleaning scrapers, of chain J, pulley K, and cranked shaft P for raising and lowering the scrapers, substantially as described.

And also—

1. The adjustable bracket E, in combination with the leader C and brace D and scraper, substantially as and for the purpose described.

And it is further adjudged and decreed that the cause be referred to Addison Mandell, Esq., a master of this court, to ascertain and report the number of railway track-clearers as described in said patents made and used, and also the number sold, by the said defendant since the twenty-seventh day of August, in the year 1878, and the damages he has sustained and the use and profits the defendant has derived by reason of such infringement since the time last aforesaid; and upon the coming in and confirmation of said report that said complainant have a decree and execution for the amount found due to him, and also for the costs of this suit, to be taxed.

57 United States Circuit Court, District of Connecticut. In Equity.

AUGUSTUS DAY

vs.

THE FAIR HAVEN AND WESTVILLE RAILROAD COMPANY.

Testimony taken on behalf of the defendant, under the 67th rule in equity of the United States Supreme Court, as amended, before Henry E. Taintor, an examiner of said circuit court, at room No. 22, No. 2 Central Row, Hartford, Connecticut, commencing on Tuesday, March 25th, 1884, at ten o'clock in the forenoon, pursuant to the annexed notice.

Present: Sprague & Hunt, counsel for the complainant, and W. E. Simonds, Esq., counsel for defendant.

Defendant's counsel offers in evidence copy of specification and drawings of B. B. Scofield's patent on plows, No. 21630, dated September 28, 1858, and same is marked "Defendant's Exhibit Scofield's Patent, H. E. T., Ex.;" also

A copy of the specification and drawings of the patent to William and Thomas Schnebley on harvesters, No. 22203, dated November 30, 1858, and same is marked "Defendant's Exhibit Schnebley Patent, H. E. T., Ex.;" also

A copy of the specification and drawings of James Sheridan's patent on track-clearer, No. 35066, dated April 22, 1862, and the same is marked "Defendant's Exhibit Sheridan 1862 Patent, H. E. T., Ex.;" also

58 A certified copy of the patent to Job Johnson and Joseph B. Bolton for track-clearer, No. 38229, dated April 21, 1863, and the same is marked "Defendant's Exhibit Johnson & Bolton Patent, H. E. T., Ex.;" also

A certified copy of James Sheridan's patent on track-clearer, No. 42411, dated April 19, 1864, and same is marked "Defendant's Exhibit Sheridan 1864 Patent, H. E. T., Ex.;" also

A copy of the specification and drawings in Samuel Hutchinson's patent on gang plow, No. 56942, dated August 7, 1866, and the same is marked "Defendant's Exhibit Hutchinson's Patent, H. E. T., Ex.;" also

A certified copy of C. C. Elliott's patent on track-clearer, No. 62535, dated March 5, 1867, and the same is marked "Defendant's Exhibit Elliott Patent, H. E. T., Ex.;" also

A copy of the specification and drawings of H. J. Wattles' patent on gang plow, No. 68673, dated September 10, 1867, and the same is marked "Defendant's Exhibit Wattles Patent, H. E. T., Ex.;" also

A copy of specification and drawings in the patent of E. B. Wells for track-clearer, No. 73212, dated January 7, 1868, and the same is marked "Defendant's Exhibit Wells Patent, H. E. T., Ex.;" also

A certified copy of Samuel A. Otis' patent on track-clearer, No. 78537, dated June 2, 1868, and the same is marked "Defendant's Exhibit Otis Patent, H. E. T., Ex.;" also

A copy of the specification and drawings in John Fogarty's patent for track-clearer, No. 94587, dated September 7, 1869, and the same is marked "Defendant's Exhibit Fogarty Patent, H. E. T., Ex.;" also

A copy of the specification and drawings in W. F. Goodwin's patent on harvester, No. 101,120, dated March 22, 1870, and the same is marked "Defendant's Exhibit Goodwin Patent, H. E. T., Ex.;" also

59 A copy of the specification and drawings in John G. Perry's patent on harvester, No. 104,489, dated June 21, 1870, and the same is marked "Defendant's Exhibit Perry's First Patent, H. E. T., Ex.;" also

A copy of the specification and drawings in John G. Perry's patent on harvesters, No. 104,490, dated June 21, 1870, and the same is marked "Defendant's Exhibit Perry's Second Patent, H. E. T., Ex.;" also

A copy of the specification and drawings in Arnold Strauss' patent on track-clearer, No. 110,602, dated December 27, 1870, and the same is marked "Defendant's Exhibit Strauss Patent, H. E. T., Ex.;" also

A certified copy of James N. Clark's patent on track-clearer, No. 189,693, dated April 17, 1877, and the same is marked "Defendant's Exhibit Clark Patent, H. E. T., Ex.;" also

A certified copy of Augustus Day's patent on track-clearer, No. 125,547, dated April 9, 1872, and the same is marked "Defendant's Exhibit Day Original Patent of 1872, H. E. T., Ex."

CHARLES L. BURDETT, witness on the part of the defendant, being produced and duly sworn, in answer to interrogatories proposed to him by W. E. SIMONDS, Esq., testifies as follows:

Int. 1. What is your name, age, residence, and occupation?

A. My name is Charles L. Burdett; my age is 35 years; my residence is Hartford, Connecticut, and my occupation is civil engineer and patent solicitor. I have been engaged in patent soliciting for about three years and am accustomed by constant practice to examine machines and various devices for the purpose of determining patentable differences in their construction. Prior to taking up patent soliciting I had about twelve years' experience in the practice of my profession as engineer, and pursued such technical studies as under-lie that profession. I have testified as expert in engineering and patent causes.

Int. 2. Have you read and do you understand the reissued patent in suit?

A. I have read and believe that I understand the reissued patent in suit.

60 Int. 3. What is the alleged improvement which forms the
subject-matter of said reissued patent, referred to in its fourth claim?

A. The invention, as described in the said patent and set out in its fourth claim, is to the combination of three elements—first, a draw bar; second, a scraper, and third, a diagonal brace. This claim may be construed as a broad claim to the three elements stated and such, in my opinion, would be its construction by a court, unless some special force and effect were given to the words "as and for the purpose set forth" with which the said fourth claim ends. In case any unusual and special force is given to these words, the limitation will be to the said elements combined as shown and described in the drawings and specification. The scraper of the patent is "an independently acting scraper, resting, when in operation, wholly by its own weight upon the track."

The forward ends of the draw bar and the diagonal brace are pivoted to separate and independent hangers fast to the bottom of the car, and the seat ends of these two elements (the draw bar and brace) and the third element, a scraper, are united by means of a cast-iron "shank" of peculiar form. These peculiarities of construction seem to be material to the operation of the device in the manner described in the patent, and the limitation in the scope of the claim which I have supposed to be made necessary by giving special and unusual force to the words quoted from the claim is a limitation to substantially this specific construction.

If I were called upon and it were my province to construe said fourth claim I should give as my opinion that the claim should be construed broadly to the combination of the three elements, the draw bar, the scraper, and the diagonal brace.

(Complainant's counsel objects to so much of the above answer as is included between the word "stated" in the eighth line of answer and the words "as and for" in the eleventh line, and all of the last sentence, as being the office of the court and not of the expert to interpret the patent.)

Int. 4. In case the forward ends of the draw bar and diagonal brace are pivoted independently of each other, as described in the reissued patent in suit, what office, function, or purpose, with reference to such draw bar and diagonal brace, does the casting
61 by which they are united at the rear ends (lettered B and
called a shank in the said reissue) serve?

A. The shank, with its "ribs and studs," is the part to which the draw bar and brace are securely bolted, and the office or function of this part, as described, is to ensure "perfect accuracy in the set of the scraper, * * * an essential feature of" the "invention" set out in the said patent.

Int. 5. Please to examine the specification and drawings of Defendant's Exhibit Scofield Patent and say whether or not, in your opinion, said Scofield patent shows and describes substantially what is described in the reissued patent in suit and referred to in the fourth claim, on a supposed construction of that claim which makes it cover, broadly, the combination of the draw bar, the scraper, and the diagonal brace, without reference to the particular manner in which those parts are combined, as described in the reissued patent in suit.

A. I have examined the Scofield patent and find in that patent the combination of a draw bar or its equivalent, a scraper or its equivalent, and a diagonal brace. The function of the diagonal brace in the combination is to prevent lateral displacement of the draw bar and connected scraper or equivalent with respect to the path of the wheeled vehicle to which it is attached.

Int. 6. Please to examine the specification and drawings of Defendant's Exhibit Sheridan 1862 Patent and say whether or not, in your opinion, said Sheridan 1862 patent shows and describes substantially what is described in the reissued patent in suit and referred to in the fourth claim, on a supposed construction of that claim which makes it cover broadly the combination of the draw bar, the scraper, and the diagonal brace, without reference to the particular manner in which those parts are combined as described in the reissued patent in suit.

A. I have examined the Sheridan 1862 patent and find in combination a draw bar with a connected scraper and a diagonal brace to hold the scraper from lateral displacement. The draw bar is represented as having a nearly vertical position, but none the less serves as a draw bar, and diagonal braces are arranged upon each side of the draw bar or "beam F," so that the device contains the elements a draw bar, diagonal brace, and scraper combined for the same purpose as in the patent in suit.

62 The scraper in the reissued patent in suit is held down wholly by its own weight upon the track, whereas the scraper in the Sheridan patent is held down by means of a spring K, but the broad combination of the three elements, draw bar, scraper, and diagonal brace, are undoubtedly present in the Sheridan device, although this spring K may also act in the combination as a species of draw bar pushing against instead of pulling upon the scraper. There is no patentable distinction in the one method of operation over the other, or broad difference in mechanical effect.

Int. 7. In the device described in Defendant's Exhibit Sheridan's 1862 Patent, suppose the scraper while the car is in motion strikes an obstruction on the track so as to force backward, what is then the position of the draw bar? (Meaning by "draw bar" the bar to which the scraper is attached.)

A. When the scraper strikes an unyielding obstruction on the track, it is pushed back so that the beam is thrown out of its vertical position, and the scraper and connected beam or bar rise and pass over the obstruction, compressing in this movement the spring K, which serves to restore the scraper and draw bar to the position they occupied before the obstruction was met.

Int. 8. When the beam or draw bar is thus thrown out of its vertical position, what position does it assume for the time being?

A. It assumes a sloping position, out of the vertical.

Int. 9. Please to examine the specification and drawings of Defendant's Exhibit Johnson and Bolton Patent, and say whether or not, in your opinion, said Johnson and Bolton patent shows and describes substantially what is described in the reissued patent in suit and referred to in the fourth claim, on a supposed construction of that claim which makes it cover broadly the combination of the draw bar, the scraper, and the diagonal brace, without reference to the particular manner in which those parts are combined, as described in the reissued patent in suit.

A. I have examined the specification and drawings of the patent enquired of, and find therein a scraper fixed upon a draw bar, or its equivalent, and held against lateral play by a brace. The draw bar pushes the scraper instead of pulling it, but this difference in construction is not one from the use of which any unexpected results flow, such as would make one device patentable over the other. It is immaterial, patentably considered, whether the scraper is pushed or pulled by the draw bar.

63 Int. 10. Please to examine the specification and drawings of Defendant's Exhibit Hutchinson Patent and say whether or not, in your opinion, said Hutchinson patent shows and describes substantially what is described in the reissued patent in suit and referred to in the fourth claim, in a supposed construction of that claim which makes it cover broadly the combination of the draw bar, the scraper, and the diagonal brace, without reference to the particular manner in which those parts are combined, as described in the reissued patent in suit.

A. I have examined the said patent and find therein a frame moving upon and supported by wheels, bearing, pendant from the frame, a scraper, or its equivalent, fixed at the end of a draw bar, or its equivalent, held against lateral motion by a diagonal brace. The broad combination of a draw bar, scraper, and brace appear to be present in this patent, provided, as in my opinion is the case, there is no patentable difference between pushing and pulling the scraper.

Int. 11. I wish to call your attention to this Hutchinson patent from another point of view. I take it and letter a certain part S in red ink; I letter another part in red ink T, and a third part in red ink W. What is the part thus lettered S, what the part lettered T, and what the part lettered W?

A. The letter S denotes a bar arranged longitudinally of the frame of the machine, and constituting what I should call a side bar of the frame I. The letter T denotes a plow attached to the lower end of a standard, which standard is attached to the frame S. The part W represents a diagonal brace connecting the bar S with a transverse part of the frame of the machine.

Int. 12. Is or not the bar S pivotally hung at its front end so that its rear end and the plow T are free to rise and fall?

A. The specification states that "the ends of the frame I" (of which the bar S is a part) "rest loosely in frame A, the back end of I resting upon the rear cross-piece *d* of A and the front ends resting upon cleats *e* when I is fully down." What the inventor calls a gauge screw passes vertically through the front part of the frame and rests upon the cleat, and the frame, if its rear part were lifted, would rock or tilt on the end of this screw. The diagonal brace is shown as pivotally connected to the cross-bar or frame A and to the side of the bar S. This construction per-
64 mits the bar S to be lifted, bearing with the plow T by means of the connecting standard J.

Int. 13. Does or not the bar S cause the propulsion or movement of the plow T?

A. Yes; if the bar S is moved it will move the plow T.

Int. 14. With reference to the axle D, is the plow T pushed or pulled?

A. It is pulled.

Int. 15. Then, considering the combination of the bar S, the plow T, and the brace W, is there or not any need to make any distinction as to pushing or pulling between that combination and the combination recited in the claim in suit?

A. There is not.

Int. 16. Please examine Defendant's Exhibit Elliot Patent. On a construction of the claim in suit which makes it cover broadly the combination of the draw bar, scraper, and diagonal brace, does or not this patent show substantially that combination?

A. I have examined Exhibit Elliot Patent and find therein an equivalent of the combination enquired of.

Int. 17. Please examine Defendant's Exhibit Wattles Patent. Do you or not find therein a draw bar pivotally hung at its front end, a plow pulled forward in its work by such draw bar, and a diagonal brace preventing lateral displacement of such draw bar, and which might, if need be, aid in the propulsion of such plow?

A. I have examined Exhibit Wattles Patent and find therein a draw bar bearing a plow and held by a diagonal brace against lateral displacement, the draw bar being attached to a cross-piece that permits of a rotary motion in its bearings.

Int. 18. Please examine Defendant's Exhibit Wells Patent and say whether you find therein a draw bar free to rise and fall at the end where the scraper is attached and provided with a diagonal brace against lateral displacement.

A. I have examined the Welles patent enquired of and find therein shown and described a scraper borne at the end of a draw bar, the other end being connected to the bottom of the car and the scrapers held against lateral displacement by a connecting cross-bar that by means of connected parts forms also a brace, the scraper being free to rise and fall as the device is borne forward in use.

65 Int. 19. On this broad construction of the claim in suit already supposed, does or not Defendant's Exhibit Otis Patent show that combination?

A. It does. The scrapers are attached to the lower end of a draw bar, the draw bar being pivotally connected to the bottom of the car and the scrapers held against lateral displacement by means of a rod and a diagonal brace.

Adjourned to Wednesday, March 26, 1884, 10 a. m.

WEDNESDAY, *March* 26, 1884—10 a. m.

Met pursuant to adjournment.
Present: Same parties.

Examination of CHARLES L. BURDETT continued:

Int. 20. Please examine Defendant's Exhibits Schnebley Patent, Goodwin Patent, and the two Perry Patents and say whether or not you find in each of them a pivotally hung bar, giving motion or propulsion to an implement at the free end thereof, and a diagonal rod or brace supporting such bar and implement against lateral displacement and capable of assisting in the motion or propulsion of the implement, if need be.

A. I have examined the Schnebley patent and find therein a bar pivotally attached to a wheeled vehicle bearing on its free end a cutting implement, which is held in position by a diagonal brace. In the Goodwin patent I find a bar pivotally connected to a wheeled structure bearing at its free end a cutting device, which is held against lateral displacement by a diagonal brace pivoted to the axle to which the bar is also pivotally attached. In the Perry patents inquired of I find in each a bar or its equivalent pivotally connected to a wheeled structure, the bar bearing at its outer and lower end a cutting device, which is held against lateral displacement by means of a brace or tie pivoted to the axle of the structure.

All of the devices described and illustrated in these patents last inquired of belong to the class of mowers or harvesters, and in each of the devices shown and described in the said patents I find, in combination, a draw bar or its equivalent, pivotally attached to a wheeled structure bearing at its free and lower end an imple-
66 ment that is moved along near the ground, and a diagonal brace. So far as the movement of the implement on the free end of the main bar is concerned it is evidently immaterial, if patentable difference is sought for, whether the draw bar pushes or pulls it, and the function of the diagonal brace is plainly identical whether the implement is pushed or pulled. It is used to prevent lateral displacement of the implement at the end of the bar and so hold it in a given position with reference to the path of the wheeled structure. It is also clear that the substitution of a scraper for a cutter in any of these devices, broadly considered, would not be invention or involve anything more than the most ordinary intelligence.

Int. 21. If the fourth claim of the reissued patent in suit be limited to the manner of combination described in the patent, requiring the presence of the socketed casting, or if that claim be limited so as to require that the draw bar and the brace be pivoted independently of each other, in either of these events does or not defendant's device complained of as an infringement (supposing the same to be illustrated by the model, Complainant's Exhibit A) embody the construction described in said reissue and referred to in said fourth claim?

A. It evidently does not. The limitation in the first branch of the question requires the presence of a specific socketed casting that is not found in Complainant's Exhibit A, and the limitation in the second branch of the question requires that the draw bar and the brace shall be pivoted independently of each other, and this construction is evidently not present in Complainant's Exhibit A.

(It is stipulated by and between counsel for respective parties that defendant is licensed under James N. Clark's patent on track-clearer No. 189,696, dated April 17, 1877.)

Int. 22. Is or not defendant's device complained of herein as an infringement constructed in accordance with the drawing and description in J. N. Clark's patent No. 189,696, dated April 17, 1877?

A. It is. The Clark patent describes a bar that extends nearly
the entire width of the car and is journaled at its ends in hangers
pendant from the platform. Two arms of metal extend from this
cross-bar backward so that their rear ends rest about over the track.
To the ends of these arms are attached scrapers, and two other arms
or braces made of spring steel connect these scrapers and the
67 cross-bar. A forward extending arm fast to the cross-rod at
about its center is pivoted to a toothed rod which projects
upwardly on the front of the dash-board and passes through a loop
on the same. The structure in Complainant's Exhibit A contains
the elements thus described, combined in the manner described, to
produce the result intended in the patent.

Int. 23. Is or not defendant's structure complained of as an infringement herein a mere servile copy or mere colorable evasion of the structure described in the complainant's reissued patent in suit?

A. It is not. The device complained of is simpler in construction, and this difference in construction is evidently not made for the mere purpose of avoiding complainant's patent in suit or in imitation of the device of that patent. In complainant's device the scraper is held down by gravity, the draw bar and the brace are independently pivoted to the car frame, and a pulley chain and rotary shaft are used to lift the scraper.

In defendant's device the draw bars and braces are fast to a rocking bar pivoted to the car bottom and the scrapers are held down by the elasticity of the braces, the degree of pressure being regulated, in a measure, by means of the toothed rod pivoted to the forward extending rod fast to the cross-bar, which rod also serves to lift the scrapers out of the way when not in use. Defendant's structure has all the advantages present in complainant's structure, and by its use a like result is attained by a simpler combination of elements, one of which, the brace, has a double function as brace and spring.

Int. 24. In complainant's patented device the forward ends of the draw bar and brace are pivoted independently of each other, while in defendant's device the draw bar and brace have a common pivot, in that both are rigidly attached to the same rocking shaft. In complainant's patented device the scraper rests upon the rail by its own weight, while in defendant's device, as you have already pointed out, the scrapers rest upon the rail with an elastic pressure, in the attainment of which the elasticity of the draw bar and braces is a factor. For the attainment of said elastic pressure in defendant's device is or not the common pivot for both draw bar and brace an essential element?

A. It is. As the device is shown and described in the Clark patent the function of the draw bars and braces as springs and the use
of the toothed rod in regulating such pressure upon the
68 scrapers makes a common pivot, such as is afforded by attachment to the rocking bar, an essential feature of the device.

Direct examination closed.

Cross-examination by complainant's counsel:

X Int. 25. Do you find in Complainant's Exhibit A, which you say is constructed in accordance with the Clark patent, the combination of the draw bar and scraper with a diagonal brace?

A. I find in the said exhibit the combination of a draw bar, a scraper, and a diagonal brace.

X Int. 26. What is the use of these three separate elements and what is the result of the combination?

A. In Complainant's Exhibit A the draw bar and brace are used to hold the scraper in front of the wheel of the car as it moves along a track and to permit in the scraper such vertical movement as may be required for the scraper, which performs the usual function in such structures--that is, the removal of obstructions from the track.

X Int. 27. In the Complainant's Exhibit A are the draw bar and brace pivoted on the same axle line?

A. They are fast to a bar pivoted at its outer ends in bearings fast to the bottom of the car or platform.

X Int. 28. Can the scrapers in that device be lowered and raised without disturbing the vertical position thereof with relation to the track?

(Objected to as immaterial.)

A. The vertical movement of the said scrapers is in a plane extending always across the track and without lateral displacement of the scrapers from the track.

X Int. 29. In your answer to the 4th interrogatory you say the shank with its ribs and studs is an essential feature of the invention set out in said patent. Is it, in your opinion, an essential feature of the combination described in the fourth claim of the patent?

A. I am not aware that I have expressed such an opinion, and by

referring to my answer to the 4th interrogatory find that I stated that the office or function of this part (the shank), as described, is to ensure "perfect accuracy in the set of the scraper, * * * an essential feature of" the "invention" set out in the said
69 patent. This statement I find in the Day reissued patent in suit, page 1, column 2, lines 43 to 47. As to the second branch of the question, the shank as described is, in my opinion, an essential feature of that fourth claim, provided it be limited, as I have before supposed, by the words "as and for the purposes set forth."

X Int. 30. In your answer to the 5th interrogatory you say that you find "the combination of a draw bar or its equivalent, a scraper or its equivalent, and a diagonal brace." Will you state whether you find in that patent the combination of a draw bar, a scraper, and a diagonal brace, or whether you only find the equivalents of the first two elements?

A. I find in the Scofield patent, in combination, one equivalent of a scraper and what may be very properly termed a draw bar.

X Int. 31. What in the Scofield patent is the equivalent of the draw bar?

A. The plow beam A in a vertical socket, in which moves the vertical standard F, to the lower end of which the plow is secured. The plow is drawn forward by suitable power applied to the plow beam, and, considered as a medium through which motion is imparted to the plow, the beam A may be properly considered as a draw bar.

X Int. 32. To what is the front end of the draw bar in the Scofield machine attached?

A. Attached to the rear end of a draft pole.

X Int. 33. To what is the front end of the draft pole attached?

A. It is not shown as attached to anything, but is presumably attached to the yoke or some part of the harness of whatever animals draw the device.

X Int. 34. To what is the rear end of the plow beam attached?

A. It is attached to an axle.

X Int. 35. What supports the axle?

A. The axle is supported in the hub of the wheels N N′.

X Int. 36. Do these wheels or one of them follow the plow or not?

A. The wheel N′ is represented as tracking immediately in rear of the mould board D.

X Int. 37. Which governs the position of the machine—the plow or the wheels?

70 A. The direction of the machine in its forward movement is governed in part by the wheels, this depending in a measure upon the depth of the furrow and stiffness of the soil.

X Int. 38. Has the plow beam which you have mentioned any vertical movement?

A. It has; as it may be lifted by the colter, as the latter runs along the surface of the ground, the pivot bearings of the axle being in the hubs of the wheels when the beam is moved in a vertical plane.

X Int. 39. Does the device shown in the Schofield patent, in your opinion, come within the fourth claim of complainant's patent, including in such claim the words "as and for the purpose set forth?"

(Objected to as immaterial.)

A. Considering the fourth claim as thus limited, the device shown in the Scofield patent, in my opinion, does not come within the scope of the claim, as it does not contain the specific construction and peculiar combination of the elements which would bring it within the scope of the claim.

X Int. 40. Will you look at the patent of J. Sheridan of April 22, 1862, and state what you find therein that represents or is a diagonal brace?

A. I have examined the patent of J. Sheridan and find therein, in the drawings, a representation of, and in the specification, page 2, line 30, a description of, "two braces *a a* on each side of the beam." In line 26 of the same page the specification states, "to keep the scraper on the track it is necessary to brace it laterally, and the braces fulfilling this function must," &c. Those braces I have referred to and pointed out.

X Int. 41. To what are the two ends of these braces attached?

A. One end of each brace is attached to "the clamp G," on the beam and the opposite end is fast to a point, *v*, on the bottom of the car at some distance to one side of the device; and the patent states: "By this means the beam is firmly braced on each side." This beam is what I have termed a draw bar or its equivalent, and it bears fast to its lower end the scraper.

X Int. 42. How is the bar F in the Sheridan patent attached to the car?

A. The bar F in the Sheridan patent is pivoted at its upper
71 end to brackets fastened to the bottom of the "car body
B." The patentee, Sheridan, says, "I suspend the upper end of the beam F on a pivot, *r*, which pivot is fixed in or on the beam and works freely up and down in the grooves E′, made in the inside of the brackets D, secured to the car body B by bow bolts E."

X Int. 43. I find in the drawings of the Sheridan patent four braces marked *a*, two shown in Fig. 1 and two shown in Fig. 2, all attached to the clamp G. To what are the other ends of those braces attached?

A. In Fig. 2 of the drawings of the Sheridan patent the bolts are so broken off that their upper ends are not shown. In Fig. 2 the upper ends of the two bolts shown are carried by dotted lines to what Sheridan calls "the point *v*," in line 1, page 3, and on page 2, line 30, *et seq.*, he says, "and from it carry two braces *a a* on each side of the beam to a hinge joint *v* (in dotted lines) on each side of the bracket D." From this it is evident that the upper ends of the braces which hold the beam and scraper from lateral displacement are pivotally connected to the bottom of the car.

X Int. 44. Is the clamp G fast on the bar F or not?

A. The inventor, Sheridan, says: "I fit the clamp G loosely around the beam;" and he further states, after describing the arrangement of the braces *a*, "by this means the beam is firmly braced on each side and at the same time left perfectly free to rise and fall, and to vibrate longitudinally on the pivot *r*."

X Int. 45. What is the office, in the Sheridan patent, of the rope or cord marked *b*?

A. The inventor, Sheridan, says: "To enable the driver to raise the scraper from the track when its use is not required, I connect a cord, *b*, to the clasp G and carry it over the drum H, fixed under the front end of the car body, on a shaft, which may be turned by any convenient means, so as to raise the scraper off the track." It is evident that the beam and scraper are not held against backward movement, as a certain backward movement of the scraper is necessary in order to enable it to rise over any obstruction on the track.

X Int. 46. You have quoted from the patent in your last answer, "to enable the driver to raise the scraper," &c. What backward movement of the scraper is required when the driver raises it from the track by the cord *b*?

72 A. There is no backward movement required in order to enable the driver to raise the scraper, for, as I understand the patent, the beam is by means of the cord vibrated on the pivot, and so swung up out of the way. The backward motion is a necessary incident and result of the scraper meeting and pushing against an obstruction that offers considerable resistance to removal.

X Int. 47. Can there be any backward movement of the scraper unless the cord *b* is unwound from the drum?

A. There cannot.

X Int. 48. Then the cord *b* acts as a draw bar for the scraper, does it not?

A. I do not so understand it, and can find nothing in the patent that requires the cord *b* to be held so that it cannot unwind from the drum, and in fact find represented in Fig. 1 of the drawings at least one complete turn of the cord represented as wound upon the drum. Unless the scraper is swung backward, such an extra length of rope is not needed. This may not be the most conclusive evidence that the rope is intended to be further unwound, but it certainly shows a sufficient length of rope to permit the scraper and beam to be swung back considerably out of the vertical.

X Int. 49. If the rope *b* was cut, what would hold the scraper to its work or prevent it from swinging backwards?

A. The inventor, Sheridan, states page 2: "To hold the plow or scraper in its proper position and at the same time allow it to yield to unyielding obstructions, I use a stiff double spring, K, which I pivot to the bracket D at E and connect it to the beam F, &c. * * * By these means the scraper is held up with sufficient firmness to scrape off the loose snow and dirt." * * * This occurs in the specification before any mention is made of the cord *b*, and it is evident that the scraper is held up by the spring and not by the cord.

X Int. 50. Will you look at the spring K and tell me which way it springs or draws at the point J, where it is connected to the bar—whether forwards or backwards?

A. It is impossible to tell from the drawing just what the condition of the spring is as to flexion, but it is probable that the spring exerts, when embodied in a working device, a slight backward and downward thrust, but not sufficient to overcome the inertia of the
beam and scraper. The evident function of the spring is to
73 exert a downward pressure, as the inventor states that "it (the
scraper) must be held in this (vertical) position by some yielding agent, such as a spring or weight." It is evident that a weight would exert only a downward pressure, and a spring, to be the equivalent of a weight, in this combination, would likewise exert a downward pressure.

X Int. 51. If the spring K exerts a downward and outward or backward pressure at the point J on the beam, what would hold the beam in a vertical position if the cord *b* were cut?

A. That would depend on the amount of backward pull of the spring. If it were slight, as compared with the weight of the beam and scraper, the inertia of the latter parts would hold the beam vertical.

X Int. 52. Suppose that the cord *b* was cut and the scraper should meet with something on the track, would not the scraper fall back and rise over it?

A. It certainly would not if the device were constructed according to the patent, which requires that the spring shall be stiff enough to hold the scraper with sufficient firmness to scrape off the loose snow and dirt that may be on the track.

X Int. 53. You have just said that the spring exerted a backward force as well as a downward. Now, how can it do that and hold the scraper forward to its work, the cord *b* being cut?

A. I find by reference to my answer to X Int. 50 that in that answer I said: "It is impossible to tell just what the condition of the spring is as to flexion, but it is probable that the spring exerts, when embodied in a working device, a slight backward and downward thrust." I mean, of course, that this condition of the spring applies when the parts are in the condition shown in the drawing as to their relative position. As soon as the scraper is lifted it compresses the bent spring, which, under such compression, tends to thrust the scraper downward, and at the same time the "double" of the spring tends to throw the larger portion of the spring forward. It will be seen that this spring of the Sheridan device is one of peculiar shape. It is pivoted to the bracket at a loop formed between its extremities, and both of its curved arms on each side of that loop exert special functions, the arm L tending to turn the whole spring around upon the pivot on the bracket and the larger part of the spring below that pivot being so bent as to cause it to exert a downward thrust when compressed.

74 X Int. 54. Do you mean by that that the spring K would
hold the scraper in position and force it to do its work if the cord *b* was cut?

A. I mean that the amount of downward pressure of the spring is merely a question as to the stiffness of the spring, and that the device illustrated may be made with the elements combined as shown with the cord *b* wholly omitted, and that such a device would certainly be practical as a track-clearer ; and it is also my opinion, as I have already stated, that the cord *b*, so far as we can learn from the Sheridan patent, has no necessary function in holding the scraper to its work. On the contrary, it is particularly described as a means of preventing the scraper from doing its work—that is, lifting it out of the way.

X Int. 55. I find on the drawing of the Sheridan patent a groove marked E′ in the bracket D. What is that groove for?

A. The grooves E′ in the brackets D are provided as bearing points and guides for the pivot *r*, fast to the beam F.

X Int. 56. Do they allow the beam F to move up and down?

A. The patent states that they are put there for that purpose.

X Int. 57. Does the clamp G move up and down with the bar F?

A. It does not, so far as can be learned from the patent.

X Int. 58. If the bar F was moved up as far as those slots would allow it, and while in that position the cord *b* was cut, what would be the result of the action of the spring K?

A. The position and direction of motion of the bar F depends altogether on the point of application of any force and the amount and direction of the force. If the question is intended to mean that the bar F is lifted vertically, and that the lifting force shall then be suddenly removed, the spring K, under these conditions, would aid gravity in dropping the beam and scraper until the scraper touched the track.

X Int. 59. Under those conditions would the spring K give the scraper any backward motion?

A. It probably would not; but, if any, only a slight backward motion.

Adjourned to Thursday, March 27, 1884, at 9 a. m.

75 THURSDAY, *March* 27, 1884—9 a. m.

Met pursuant to adjournment.
Present: Same parties.

Cross-examination of CHARLES L. BURDETT continued:

X Int. 60. Will you look at the Sheridan patent of 1862 and state if you find in that patent the fourth claim of the complainant's patent with the words "as and for the purpose set forth" included in the claim.

A. I have examined the Sheridan patent enquired of and find therein a draw bar, a scraper, and a diagonal brace combined and arranged as a track-clearer, but the elements in this Sheridan patent are not identical with the elements in the Day reissue patent in suit when exact correspondence in the minor details of construction are sought for.

X Int. 61. You state that you find in the Johnson and Bolton patent a draw bar or its equivalent and held against lateral play by a brace. Is that brace the same as the diagonal brace mentioned in the fourth claim of complainant's patent?

A. The brace in the Johnson and Bolton device is a diagonal brace to prevent lateral displacement of the draw bar, but it is not combined and arranged precisely like "the diagonal brace E" of the Day reissue.

X Int. 62. What letter denotes the brace in the Johnson and Bolton patent?

A. It is the part denoted by the letter *l*.

X Int. 63. Does not that part *l* extend from one "stock" (as it is termed in the patent) "of the track-clearer" to the other?

A. It does.

X Int. 64. Is it hinged to anything?

A. It is pivoted to the end of a lever, *m*.

X Int. 65. What is that lever *m* used for?

A. The lever *m* is used to regulate the position of the scrapers with respect to the track as the car moves up and down on the springs.

X Int. 66. How is that lever connected to the bar *l*?

A. The specification states, "We have represented the end of this lever as setting over the stud 5."

76 X Int. 67. Do you understand by that that the bar *l* is fast to the lever or only rests upon it by means of the stud 5?

A. The stud 5 is fast at its upper end to the bottom of the car, passes down through a hole in the brace or bar *l* and through the lever *m*, and has on its lower end and below the lever a nut that keeps the lever and the brace from being pushed off the stud by the pressure of the coiled spring arranged about the stud. The cross-bar *l* apparently merely rests upon the lever *m* under pressure of the said coiled spring.

X Int. 68. Will you look at Fig. 3 of the Johnson and Bolton patent and state if the cross-bar *l* is shown in that figure; and, if so, how it is designated?

A. It is designated by the letter *l*.

X Int. 69. Does that Fig. 3 show the stud 5 passing through the cross-bar *l*?

A. As near as I can make out the drawing it represents it by dotted lines as passing through the cross-bars.

X Int. 70. Do not the dotted lines on the cross-bar represent the course or place of the bolt 4?

A. Not the ones that I refer to. The dotted lines representing bolt 4 are evidently the bolts which, passing through the stock *e*, serve to fasten the boxes *h* to the upper side of the stock. These parts pertaining to the stock are clearly shown in view beyond the plane of the section through the part *l*.

X Int. 71. Does the bar *l* have any other motion on the stud 5 than a vertical motion?

A. As near as I can make out from the drawings the slotted opening in the bar *l* through which the stud 5 passes is only wide enough to permit the free play of the brace or bar *l* in a vertical plane, so that this brace may not impede the rise and fall of the scraper on the track.

X Int. 72. Does the entire brace or bar *l* rise and fall with the scrapers, and is such rise and fall to the same extent over the entire length of the bar?

A. If the scrapers are both raised an equal distance above the tracks the bar *l* would rise equally with them, except as it might be bent slightly downward by the pressure of the coiled spring on the stud, this also depending on the flexibility of the bar in a vertical plane.

77 X Int. 73. Do you find in the Johnson and Bolton patent the fourth claim of the complainant's patent, including the words "as and for the purpose set forth?"

A. Understanding, as before, that those words are so interpreted as to limit the device to the identical device of the Day reissue patent, in my opinion the Johnson and Bolton device does not show the elements necessary to bring it within the scope of that claim as restricted, although the Johnson and Bolton device contains broadly the elements, a draw bar, a scraper, and a brace against lateral movement combined in a track-clearer.

X Int. 74. Do you consider the bar *l* in the Johnson and Bolton patent a diagonal brace or not?

A. Each branch of the brace from its central point of connection to the stud 5 passes diagonally to the points of connection to the draw bars, as is evident by an inspection of the plan view shown in Fig. 1.

X Int. 75. Is not the point where the bar is connected to the stock of the scrapers nearer the base or hinge upon which the scrapers revolves than the center on the stud 5?

A. The distance from the shaft *d* measured along the center line of the car to the point of connection of the bar or brace *l* with the stud is evidently greater than a measurement, also lengthwise of the car, from the same shaft *d* to the point where the outer end of the brace or cross-bar is fastened to the stock.

X Int. 76. Does not such a form of brace tend more to brace the stud 5 against lateral displacement than it braces the scrapers against lateral displacement?

A. In my opinion it does not.

X Int. 77. You say in your answer to question 10 that you have examined the Hutchinson patent; that you find therein a frame moving upon and supported by wheels bearing pendent from the frame a scraper, or its equivalent, fixed at the end of a draw bar, or its equivalent, held against lateral motion by a diagonal brace. Will you state whether you find the draw bar and the scraper or only their equivalents in that device?

A. I find in that device a draw bar and fast to it a plow, which I have considered the equivalent of a scraper.

X Int. 78. How is the part which you call a draw bar designated in this Hutchinson patent?

78 A. In the Hutchinson patent it is designated as the frame I.

X Int. 79. How is the frame I attached to the frame A?

A. It rests loosely in the frame A, the back end of I resting upon the rear cross-piece of the frame A and the front end of the frame I resting upon cleats when the latter frame is fully down.

X Int. 80. By what means is the frame I held in position when the machine is in operation?

A. It is held by its weight in the bearings of the larger frame, as already described.

X Int. 81. In the drawing the rear end of the frame I is shown as cut in a bevel or part of a circle. Now, what prevents it sliding back when the machine is in operation?

A. Judging from the drawings the rear end of the bars *b* would be held between the cross-piece *d* and a transverse bar shown in the drawings as crossing above the bars *d* of the frame, this would limit, to a certain extent, the backward motion of the frame I. The chain O, attached to the frame and to a shaft fast to the main frame of the machine, also aids in holding the frame, and the diagonal brace (marked W in red) serves as a draw bar, in a measure, as well as a brace against lateral displacement.

X Int. 82. Is the frame I pivoted in any way to the main frame A of the machine?

A. It is not directly pivoted to the main frame A, being so connected to it as to permit of a rocking motion on its forward end.

X Int. 83. What do you mean by a rocking motion on its forward end?

A. I mean that if the rear part of the frame I were lifted the front end would bear on the cleats in the forward end of the frame A. Such movement, however, of the frame I is very limited in its extent, the principal adjustment of the frame I being bodily in a vertical plane; this also to a limited degree.

X Int. 84. If the rod marked W in red operates as a draw bar is not its tendency, then, to draw the rear end of the frame I over towards the center of the machine and thereby cause a lateral displacement of the plows?

A. Such a result would be produced in the machine unless other means be provided to prevent such lateral displacement, and there seems to be such means shown in a cleat on the rear of the front
cross-bar just inside of the front end of the bar *b* and in the
79 support for the driver's seat which, fast to the upper side of
the rear cross-piece *d*, would be in the way of the bar *b* in its
supposed path along the top of the cross-piece *d*.

X Int. 85. In your answer to Int. 12 you say, "What the inventon calls a gauge screw passes vertically through the front part of the frame and rests upon the cleat, and the frame, if its rear part were lifted, would rock or tilt on the end of this screw." Now, if the rear part of the frame were lifted, would not that screw come off of the cleat or, rather, hook *e*?

A. It would if it were lifted far enough.

X Int. 86. In your answer to Int. 16 you say, "I have examined Exhibit Elliott Patent and find therein an equivalent of the combination enquired of," the combination enquired of being a combination of a draw bar, scraper, and diagonal brace. Will you state how each of these elements are designated in the said patent?

A. By the letters G and C. The distinct and separate elements, a draw bar, a scraper, and a diagonal brace, do not appear in the

Elliott device. The strap *c* with the eye *d*, by means of which it is attached to the shaft, may be called the draw bar. The scraper is present, and its plate form between the straps *c* fast to the opposite edges of the scraper prevents any collapsing of the structure diagonally. It was from such a consideration of the device that I found the equivalents of the elements enquired of.

X Int. 87. In your answer to Int. 17 you say, "I have examined Wattles' patent and find therein a draw bar bearing a plow and held by a diagonal brace against lateral displacement, the draw bar being attached to a cross-piece that permits of a rotary motion in its bearings." What do you mean by a rotary motion in that connection?

A. I mean that if the draw bar should be lifted by a force applied to its outer end alone it would cause the cross-bar (axle D) to turn in its bearings in the hubs of the wheels.

X Int. 88. Which do you call the draw bar in this machine?

A. The frame B.

X Int. 89. If the rear end of the frame B was lifted up by the chain L would that cause any motion of the axle?

A. If the force is applied by the chain L alone it would cramp the beam and turn the axle.

80 X Int. 90. Then, by your former answer, do you mean to say that if the rear end of the machine were lifted up it would cause the axle to rotate in the hub, or do you mean that if the rear end of the bar B were lifted up it would cause such rotation, as you say the bar B could not be lifted at the rear end without cramping the machine, &c.?

A. I mean to be understood as saying that a force applied to lift the bar (plow frame B) at its rear end would probably turn the axle in the hubs of the wheels.

X Int. 91. Do you mean substantially by that and your former answers that the rear end of the frame B cannot be raised without raising the entire rear end of the machine?

A. No.

X Int. 92. Then, if you do not mean that the lifting of the rear end of the bar B would lift the entire rear end of the machine, how would the lifting of the rear end of the bar B cause the axle to rotate in the hubs?

A. I mean that the result of lifting by a force applied as supposed would cramp the bar in the frame between its supporting parts and that the axle would be turned, carrying with it, of course, everything that is rigidly attached to the axle.

X Int. 93. You say that the cramping of the bar B against its supports would cause the axle to turn. How does it do that?

A. The force applied to the beam is transmitted through the guide pieces to the axle and also through the piece E.

X Int. 94. Are the rear guide piece and the piece E, together with the arm and wheel attached thereto at the rear of the machine and the brace leading from the guide piece to the axle, all lifted up by the force transmitted through the rear guide piece and the bar E to the axle?

A. They would be.

X Int. 95. Is the axle, the diagonal brace, the guide bars, and the frame E a rigid structure, or are they pivotally connected with each other?

A. They form a substantially rigid structure, the parts not being shown as pivotally connected with each other.

X Int. 96. What motion can be given to the bar B?

A. By the means shown and described it may be given an up-and-down motion in its bearings.

81 X Int. 97. Do you find in the Wells patent the combination claimed in the fourth claim of the complainant's patent, including the words "as and for the purpose set forth?"

A. Considering the said fourth claim as thus limited, I do not find in the Wells patent the specific device required to bring it within the scope of such limited claim.

X Int. 98. Will you look at the Otis patent and state if you find in such patent the fourth claim of the complainant's patent, including the words "as and for the purpose set forth?"

A. The special construction called for by the said fourth claim as thus limited is not present in the Otis device, understanding the presence of these words quoted from the claim to require the presence of particular parts and combination of those parts as before explained.

X Int. 99. Will you please examine the Defendant's Exhibits Schnebley Patent, Goodwin Patent, and the two Perry Patents and state if you find in either of them the fourth claim of the complainant's patent, including the words "as and for the purpose set forth?"

A. I have examined the patents enquired of and do not find in either of them the specific and peculiar construction and combination of the component elements called for by the limited construction of the said fourth claim.

Examination closed.

CHARLES L. BURDETT.

Hoadley B. Ives, witness for the defendant, being called and duly sworn, in answer to interrogatories proposed to him by W. E. Simonds, Esq., testified as follows:

Int. 1. What is your name, age, residence, and occupation?

A. My name is Hoadley B. Ives; my age 68 years; my residence is New Haven, Connecticut, and I am president of the Fair Haven and Westville Railroad Company, and I am also treasurer of the National Savings Bank of New Haven.

Int. 2. Of whom does the Fair Haven and Westville Railroad Company buy its car-track clearers, whose construction is illustrated by Complainant's Exhibit A?

(Objected to as immaterial and irrelevant.)

82 A. George C. Tracy & Company, of Cleveland, Ohio.

Int. 3. Has your company bought all of its said track-clearers of said George C. Tracy & Co.?

(Same objection.)

A. We have.

Examination closed.

HOADLEY B. IVES.

Edward W. Easter, witness for the defendant, produced and sworn, in answer to interrogatories proposed to him by W. E **Simonds**, Esq., testified as follows:

Int. 1. What is your name, age, residence, and occupation?

A. My name is Edward W. Easter; my age is 42 years; my residence is Fair Haven, Conn., and I am master mechanic of the Fair Haven and Westville Railroad Company.

Int. 2. In the car track clearers used by your company, whose construction is illustrated by Complainant's Exhibit A; of what material are the draw bars and diagonal braces?

A. Of spring steel.

Int. 3. Is or not the elasticity of those draw bars and braces made use of in the practical use of your track-clearers?

A. It is.

Cross-examination waived.

Examination closed.

EDWARD W. EASTER.

83 In pursuance of the stipulation to that effect, made between the parties to this suit and dated April 29, 1884, defendant's counsel offers in evidence a certified copy of a written agreement between Samuel A. Otis and George C. Tracy, dated November 23, 1878, and the same is marked "Defendant's Exhibit Otis License to Tracy."

And further, in pursuance of said stipulation, defendant's counsel offers in evidence a certified copy of a written agreement between James Sheridan and George C. Tracy and Company, dated February 18, 1878, and the same is marked "Defendant's Exhibit Sheridan's License to George C. Tracy and Company."

84 *Stipulation.*

United States Circuit Court, District of Connecticut. In Equity.

Augustus Day
vs.
The Fair Haven and Westville Railroad Company.

It is stipulated by and between the respective parties hereto that defendant may offer in evidence a certified copy from the Patent Office record of the written agreement between Samuel A. Otis and George C. Tracy, dated November 23, 1878, and of the written agreement between James Sheridan and George C. Tracy and Company, dated February 18, 1878; and it is further stipulated that said George C. Tracy and Company are the same parties referred to by Hoadley B. Ives in his answer to the third interrogatory, and that said George C. Tracy is one partner in said partnership of said George C. Tracy and Company.

Dated this 29th day of April, 1884.

SPRAGUE & HUNT,
Complainants' Solicitors.
W. E. SIMONDS,
Defendants' Solicitor.

And on the 30th day of December, A. D. 1884, the case was fully heard and argued on its merits by the solicitors of the respective parties; and thereafter, on the 16 day of March, 1885, the opinion of court in favor of defendant was filed as follows, viz:

85 Circuit Court of the United States for the District of Connecticut.

AUGUSTUS DAY
vs.
THE FAIR HAVEN & WESTVILLE RAILROAD COMPANY.

SHIPMAN, *J.:*

This is a bill in equity to prevent the infringement of the fourth claim of reissued letters patent No. 8388, granted to Augustus Day August 27th, 1878, for a horse-railway track-clearer or snow-plough. The original patent was granted April 9th, 1872.

The invention is said in the original specification to consist "in the combination of a pair of independently acting scrapers pivotally secured to the floor of a car and resting upon the track, when in operation, wholly by their own weight, with means for raising and lowering such scrapers simultaneously; in the combination, with an independently acting scraper resting, when in operation, wholly by its own weight upon the track, of a draw bar in the
86 direct line of draft, and a supplemental and diagonal draw bar, which at the same time acts as a brace, the forward ends of both of said bars being secured on the same axial line; in the peculiar construction and arrangement of a cast shank with relation to the scraper, which is secured thereto, and the draft irons which connect it to the under side of the car; in the pendent guards which lift the scraper from the track on meeting with an obstruction on the outside of the rail and deflect outwardly from the track, and in a peculiar crank for operating the shaft which raises and lowers the pair of scrapers at each end of the car."

The fourth of the nine claims of the reissued patent is for "the combination, with the draw bar C and scraper A, of the diagonal brace E, as and for the purpose set forth."

The whole apparatus is apparently a skillfully contrived and an efficient track-clearer; but, as the fourth claim is a very broad and

simple one, it is only necessary to speak of so much of the
87 mechanism as is included in that claim. That part of the apparatus consists of a draw bar pivoted to the bottom of the car and a scraper diagonally set across the rail in a manner not unusual. As the scraper when in operation rests upon the track it is, of course, subjected to lateral pressure in moving obstructions from the rail. To resist this pressure and to prevent the scraper from being crowded inward, a diagonal brace is secured to the rear end of the draw bar and is pivoted to the bottom of the car near its longitudinal center, the draw bar and brace being pivoted in the same axial line, "so that when it is desired to raise and lower the scrapers the same will be done without disturbing the vertical position thereof with relation to the track."

The track-clearers of the defendant have a scraper and a draw bar in the line of the draft and a diagonal brace, the two bars being pivoted to the car in the same axial line, but the methods by which they are fastened to the scraper or to the car are not the methods of the patent. The defendant's scraper is pressed upon the track by elastic steel arms.

88 The fourth claim is for a scraper and a draw bar in the line of the draft, irrespective of the method of pivoting scraper and draw bar together or the method of raising and lowering either, and a diagonal brace, irrespective of the method by which it is fastened to the draw bar or to the car, except that the bar and the brace must be pivoted on the same axial line. The scraper and the draw bar were both old. The only part of the combination which is claimed to be new is the diagonal brace to enable the scraper to be kept in its place on the track.

The method by which these two bars are secured to the scraper or to each other and to the car, and the method by which the scraper, draw bar, and brace can be easily and effectively raised and lowered from the platform of the car undoubtedly required inventive skill, but the mere employment of a diagonal brace, pivoted to the car in the same axial line with the draw bar to resist lateral pressure upon the scraper if such resistance was deemed important, seems to me the obvious and natural suggestion which would occur to
89 any mechanic. The use of a diagonal stay to resist a strain upon a sled or single runner, and, in general, the use of a "corner brace" to resist tendency to lateral displacement are within the range of the most ordinary mechanical knowledge and of common experience, and this is about all that the patentee included in this claim. Being simply for the addition of a diagonal brace to the draw bar for the purpose of resisting lateral pressure upon the scraper, the only mechanical requirement being that the bar and the brace should be pivoted upon the same axial line and not including the patented mechanism by which either of the three members of the combination is secured to the other or is made effective, the claim is so general that it does not define the actual invention of the patentee. That is stated in the other claims. The suggestion of the patentee in the reissued, but not in the original, patent that the diagonal brace serves also as a supplementary draw bar was not

important and does not seem to have been so considered by his expert witnesses.

90 I cannot perceive that the mechanism which is included in the fourth claim was an "invention" in view of the definitions of that word in recent decision of the Supreme Court (Hollister *v.* M'n'f'g Co., Sup. Ct., Oct. T., 1884).

The bill is dismissed.

Sprague and Hunt, for the plaintiff.
Wm. Edgar Simonds, for the defendant.

91 And on the 23d day of March, 1883, the following final decree was made and entered in said cause, viz:

At a stated term of the circuit court of the United States of America for the district of Connecticut, in the second circuit, held at Hartford on the third Tuesday of September, A. D. 1884.

92 Present: The Hon. Nathaniel Shipman, district judge.

AUGUSTUS DAY
vs.
THE FAIR HAVEN & WESTVILLE RAILROAD COMPANY. } In Equity.

This cause having been heard on the pleadings and proofs and arguments by counsel for the respective parties, and the court, having considered the same, doth hereby order, adjudge, and decree:

First. The reissued letters patent on which this suit is brought are invalid as to the fourth clause of claim therein for lack of patentable novelty in the thing described and claimed therein as an invention.

Second. The bill of complaint in this cause is dismissed with costs to defendant, to be taxed.

N. SHIPMAN,
District Judge.

Approved as to form.
SPRAGUE & HUNT.

93 CLERK'S OFFICE, U. S. CIRCUIT COURT,
HARTFORD, CONN., *April* 13, 1886.

I, Edwin E. Marvin, clerk of said court, do certify that the annexed and foregoing papers are true and correct copies of the bill of complaint, pleadings, proceedings, and decree on file and of record in said court in the case of Augustus Day against The Fair Haven and Westville Railway Company.

In testimony whereof I have set hereto my hand and the seal of said court at place and date first above written.

[Seal of Circuit Court, Connecticut.]

E. E. MARVIN, *Clerk.*

Endorsed on cover: Connecticut C. C. U. S. No. 290. Augustus Day, appellant, *vs.* The Fair Haven & Westville Railway Company. Filed June 17, 1886.

EXHIBITS.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. ~~200~~. 35

AUGUSTUS DAY, APPELLANT,

vs.

THE FAIR HAVEN AND WESTVILLE RAILWAY COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CONNECTICUT.

FILED JUNE 17, 1886.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. 290.

AUGUSTUS DAY, APPELLANT,

vs.

THE FAIR HAVEN AND WESTVILLE RAILWAY COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CONNECTICUT.

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JUDD & DETWEILER, PRINTERS, WASHINGTON, NOVEMBER 9, 1888.

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Fogarty Patent—Letters Patent No. 94,587, granted John Fogarty, Sept. 7, 1869	53	25
Goodwin Patent—Letters Patent No. 101,120, granted Wm. F. Goodwin, Mch. 22, 1870	56	29
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Clark Patent—Letters Patent No. 189,696, granted James N. Clark, April 17, 1877	71	39
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B. B. Scofield.

Wheel Plow.

No. 21,630. Patented Sept. 28, 1858.

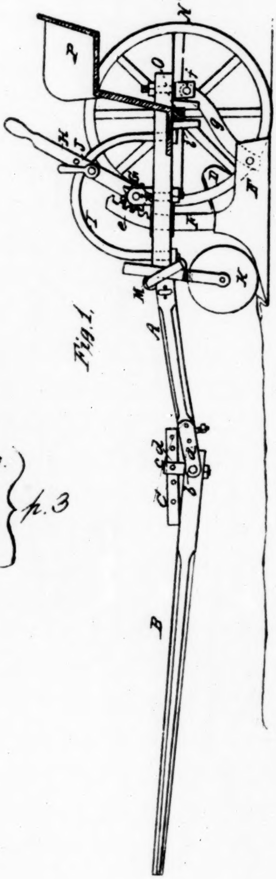

Fig. 1.

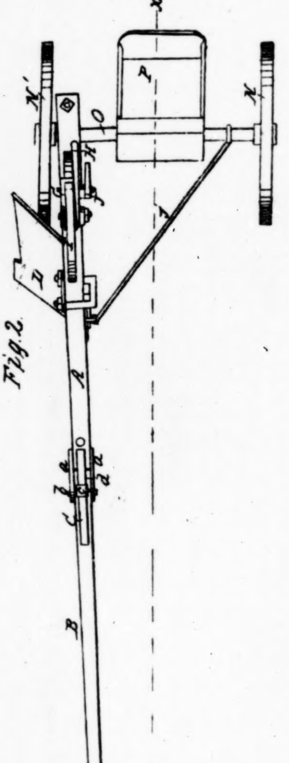

Fig. 2.

No. 290.
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F. H. & W.
Ry. Co.
} p. 3

1 DEFENDANT'S RECORD.

Copies of Patents for the Court.

AUGUSTUS DAY
vs. } No. 407.
THE FAIR HAVEN & WESTVILLE RAILROAD CO.

Filed Dec. 30, 1884.

E. E. MARVIN, *Clerk.*

I certify that the seventeen exhibits bound herein were produced upon the hearing on the merits in the U. S. circuit court

[Seal of Circuit Court, Connecticut.]

Attest: E. E. MARVIN, *Clerk.*

2 DEFENDANT'S EXHIBIT SCOFIELD PATENT. H. E. T., Ex.

B. B. Scofield. Plow. 21630. Sept. 28, '58.

[Seal of Circuit Court, Connecticut.]

(Here follows diagram marked page 3.)

4 UNITED STATES PATENT OFFICE.

B. B. SCOFIELD, of Andover, Illinois.

Improvement in Plows.

Specification forming part of Letters Patent No. 21630, dated September 28, 1858.

To all whom it may concern:

Be it known that I, B. B. Scofield, of Andover, in the county of Henry and State of Illinois, have invented a new and useful improvement in implements or devices for plowing, and which I term a "sulky-plow;" and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side sectional elevation of my improvement, taken in the line *x x* of Fig. 2. Fig. 2 is a plan or top view of the same.

Similar letters of reference denote like parts in both figures.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a plow-beam of ordinary construction, and B is a draft-pole attached thereto. The draft-pole is attached to the beam by placing its inner end between two metal plates, *a a*, through which and the beam a bolt, *b*, passes. To the upper surface of the pole B a metal loop, *c*, is attached, through which passes a short bar, C. This bar is secured in the loop *c* at any point desired by a pin, *d*, and it will be seen by referring to Fig. 1 that by adjusting the bar C the pole B may be allowed to rise to a greater or less degree to suit the size of the team.

D represents a mold-board, and E a landside. These parts are of the usual construction. The standard F, however, instead of being attached to the beam by a nut or key, as usual, passes up through the beam, and has a rack, *e*, formed at one side of it, the rack being slightly curved, forming a segment of a circle of which the pivot *f* is the center. The said pivot connects a bar, *g*, to the back part of the beam A, the lower end of the said bar being attached to the back end of the landside E.

G is a pinion, the axis of which is fitted in a suitable upright, *h*, on the beam A. The axis of this pinion has a lever, H, attached to it, and to the beam A, a semicircular bar, I, is secured, to which the lever H may be attached at any desired point by means of a clamp, J. The pinion G gears with the rack *e*.

K is a rotary colter, which is fitted in the lower part of a bar, L, said bar being secured by a dip, M, to the beam A. The colter K is directly in front of the landside E.

N N′ are two wheels, and O is the axle of said wheels. This axle is of square form, and the back end of the beam A is attached thereto by means of a forked bar, *i*, a prong passing down each side of the axle, as shown clearly in Fig. 1.

To the axle O a seat, P, is secured, and a brace, *j*, is attached to the said axle O and beam A. The "off" wheel, N′, is somewhat larger than the other wheel, N, and the off wheel runs in the furrow, said wheel being directly behind the mold-board D.

The driver in the seat P merely drives the team, and with his right hand may actuate the lever H and raise and lower the front end of the mold-board or share, so as to regulate the depth of the furrow, as desired, and the share may be raised entirely above the ground, so that no furrow will be made when none is required, as in moving from place to place. The pole B may be adjusted so as to suit the height of the team by adjusting the bar C.

By this improvement land may be plowed equally as well as by the usual hand-plow, and with but little or no labor. The draft of the implement will be also much less than that of the ordinary plow, as the pressure of the sole on the bottom of the furrow is obviated by the wheels N N′ sustaining the plow.

Having thus described my invention, what I claim as new, and desire to secure by letters patent, is—

The arrangement and combination of the pivoted bar *g*, share D, landside E, standard F, curved rack *e*, pinion G, and lever H, as and for the purposes herein shown and described.

B. B. SCOFIELD.

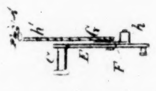
Witnessess:
I. D. MARSTON.
JOHN ANTHON.

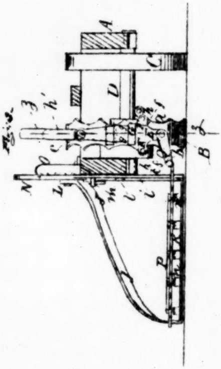
W. and. T. Schnebly:
Mower.

6

No 22.203

Patented. Nov. 30 1858





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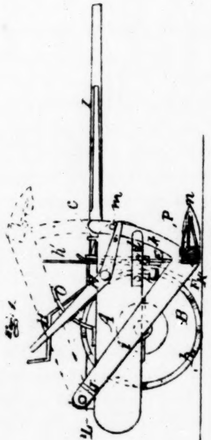

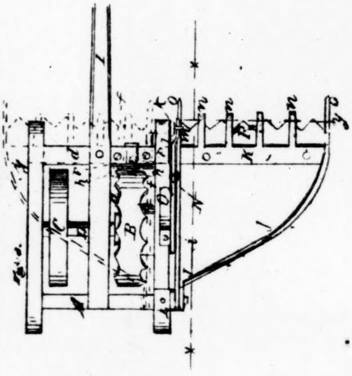

5 DEFENDANT'S EXHIBIT SCHNEBLY PATENT. H. E. T., Ex.

Schebly & Schnebly. 22203. Nov. 30, 1858.

[Seal of Circuit Court, Connecticut.]

(Here follows diagram marked page 6.)

7 UNITED STATES PATENT OFFICE.

WM. SCHNEBLY and THOMAS SCHNEBLY, of Hackensack, N. J.

Improvement in Harvesters.

Specification forming part of Letters Patent No. 22203, dated November 30, 1858.

To all whom it may concern:

Be it known that we, William Schnebly and Thomas Schnebly, of Hackensack, in the county of Bergen and State of New Jersey, have invented certain improvements in grain and grass harvesting machines; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a tranverse vertical section of our invention, taken in the line *x x*, Fig. 3. Fig. 2 is a longitudinal section of the same, taken in the line *y y*, Fig. 3. Fig. 3 is a plan or top view of the same. Fig. 4 is a section of the same, taken in the line *z z*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists, first, in a novel means employed for operating or driving the sickle, whereby the same may be readily checked or stopped when desired.

The invention consists, second, in a novel application of the sickle to the machine, whereby the sickle may be raised and lowered and retained at any desired height from the surface of the ground, and also rendered capable of being adjusted on the machine, so as to allow the latter, when not in operation, to be readily moved from place to place.

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents the main frame of the machine, in which two wheels, B C, are placed, the frame A resting in a balanced or nearly balanced state on the axle D of said wheels. The two wheels B C are placed loosely on their axle D. One of them may, if desired, be secured to the axle. The wheel B is the one which drives the sickle of the machine. This wheel B has each edge of its periphery scalloped, or formed with concaves or grooves, as shown clearly at *a b* in Figs. 2 and 3, the concaves *a* at one side of the wheel being so placed relatively with those *b*, placed at the opposite side, that the projecting points of one will be in line with the centers of the concaves of the other. The wheel C is of the same diameter as the wheel B. It may, however, be made lighter than the wheel B, and is so disposed or placed on the axle D relatively with the wheel B as to properly support the frame A.

E is a lever, the upper end of which is attached by a fulcrum-pin, *c*, to the front cross-piece, *d*, of the main frame A. This lever is of slightly curved form, extends down in front of the wheel B, and has two bent arms, F F′, pivoted to it, one arm, F, being permanently attached to the lever, the other, F′, being allowed to work on its pivot. The lower ends of the arms *f* project outward from each other and at right angles with their other parts, *g*, as shown clearly in Fig. 2.

To the outer end of each arm F a friction-roller, *h*, is attached, and these friction-rollers are kept in contact with the scalloped edges *a b* of the wheel B when the machine is in operation by means of a slide-clasp, G, which encompasses the parts *g g* of the arms, said slide being provided with a shank, *h′*, which extends upward in front of the driver's seat H on the frame A.

I is the draft-pole, attached to the main frame A.

J is a frame, in the front part of which the bar K is fitted. The frame J is formed of two bars, *i j*, the back ends of which are connected together and to a universal joint, L, which is attached to the back part of the main frame A. The bar *i* of the frame J is parallel with the side of the main frame A; but the bar *j* is curved, as shown clearly in Fig. 2, so as to extend outward to the outer end of the finger-bar M, which is firmly secured between the ends of the bars *i j*.

To the front end of the bar *i* a curved bar, *k*, is attached, said bar working in a proper guide, *l*, attached to the main frame A. The bar *k* has a pin, *m*, projecting outward from it at right angles, and a lever, N, which is attached to the main frame A, has its outer end passing underneath said pin. (See Figs. 1 and 2.) To the frame A a curved plate, O, is attached, said plate being notched at one side in order to retain the lever at any desired height or point.

P is the sickle, which is fitted and works in the fingers *n* of the bar M, as usual, or in any proper manner. The sickle is connected at its inner end to the lower end of the lever E by a link or shackle, Q, as shown clearly in Fig. 2. The front ends of the bars *i j* project forward of the finger-bar, and are curved at their bottoms to form shoes *o*.

8 The operation is as follows: As the machine is drawn along the wheel B, by means of its scalloped edges *a b* and the rollers *h* of the arms F, bearing against said edges, communicates a vibrating motion to the lever E, the side clasp, G, retaining the arms F′ in proper position, so that the friction-rollers *h* of both arms will be kept in contact with the scalloped edges *a b* of the wheel B. The movement of the lever E may be varying as regards its length of vibration by having the edges of the wheel B scalloped with larger or shorter concaves. The lever E drives the sickle P by means of the link or shackle Q, and the driver on seat H may at any time stop the motion of the sickle by grasping the shank *h′*

J. Sheridan.

Track Clearer.

No. 35,066. Patented Apr. 22, 1862.

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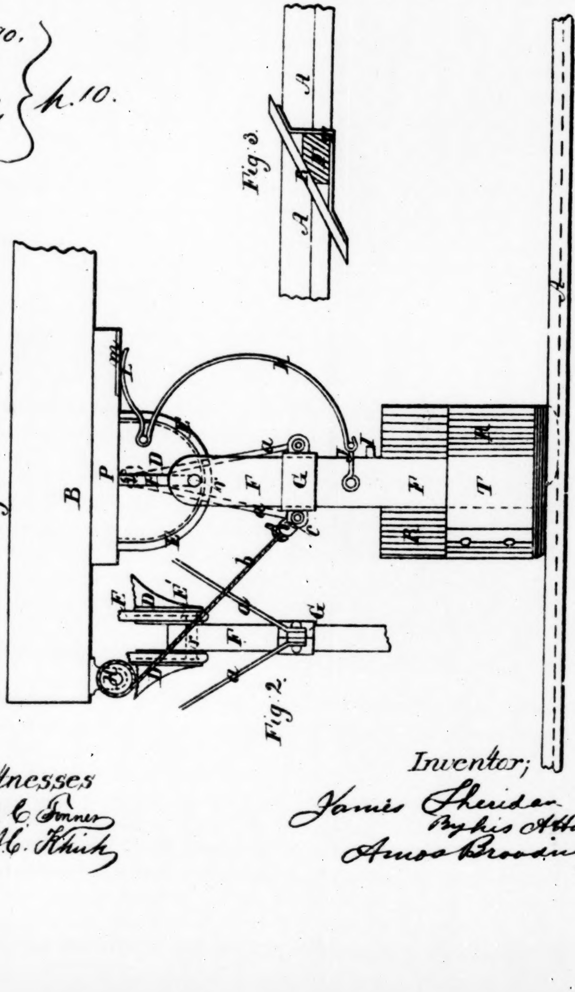


Witnesses
A. C. Tenner
A. C. Klink

Inventor;
James Sheridan
By his Attorney
Amos Broadnax

and raising the slide-clasp G, so that the roller *h* of the arm F′ will be allowed to move out from the scalloped side *a* of the wheel B, as shown in red, Fig. 2. The sickle P is allowed to rise and fall bodily to conform to the inequalities of the ground as the frame J is allowed to work or swing freely from the universal joint L, and the sickle P may be retained at any desired height by placing the back end of the lever N in the proper notch of the plate O. When the machine is to be moved from place to place the link or shackle Q is disconnected from the sickle P, the arm *k* removed from the guide *l*, and the frame J raised, rotated, or turned one-half of a revolution, the joint L being the center of motion, and the frame J is then turned over on frame A, as shown in red, Figs. 1 and 3. The frame J, sickle, and finger-bar are thereby placed entirely out of the way, and the machine may be moved from place to place equally as well as any ordinary vehicle on wheels.

Having thus described our invention, we claim—

1. The arrangement and combination of the pendulous lever E and slide G with the scalloped wheel B, as and for the purposes herein shown and described.

2. Securing the frame J, to which the finger-bar is attached, to the main frame by means of the universal joint L and the bar *k*, fitted in the guide *l* on the main frame, or an equivalent arrangement, so that the sickle may rise and fall bodily to conform to the inequalities of the surface of the ground, and at the same time be rendered capable of being placed directly over the main frame to facilitate the transportation of the machine, substantially as described.

W. SCHNEBLY.
THOS. SCHNEBLY.

Witnesses:
WM. TUSCH.
W. HAUFF.

9 DEFENDANT'S EXHIBIT SHERIDAN 1862 PATENT. H. E. T., Ex.

J. Sheridan. April 22, 1862. 35066.

[Seal of Circuit Court, Connecticut.]

(Here follows diagram marked page 10.)

11 *Specification Forming Part of Letters Patent No.* 35066, *Dated April* 22*d*, 1862.

To all whom it may concern:

Be it known that I, James Sheridan, of the city and county of St. Louis and State of Missouri, have invented a new and useful improvement — snow ploughs; and I do hereby declare the following to be a clear and exact description of the same, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a side elevation of my said improvement, and

Figures 2 & 3 are parts of the same, to be hereinafter referred to and explained.

The following description will enable any one skilled in the art to which my invention appertains to make and use the same:

Similar letters of reference represent corresponding parts of the different figures of the drawing.

The plough is represented in the drawing by R. It is secured to the lower end of the beam F and is arranged to set diagonally across the rail A. It is made of any suitable material and in any desired form. The beam F is arranged so as to be capable of a vertical motion and also a vibrating one. Its upper end is suspended by pivots & in grooves E′ made in brackets D. See dotted lines, Fig. 2.

To enable the scraper R to do its work effectually it must either set vertically with respect to the track or its bottom must set a little in advance of its top, giving it a slope from the bottom upwards and backwards, but it must be held in this position by some yielding agent, such as a spring or weight, and be so arranged that it can
yield — and pass over any unyielding obstruction on the track
12 and so as not to interfere with the vertical motion of the car
body on its springs, and the scraper should also have some
attachment by which it can be raised up out of the way when its use is not needed.

To the end that the plough may not interfere with the action of the springs under the body of the car, I suspend the upper end of the beam F on a pivot, *r*, which pivot is fixed in or on the beam and works freely up and down in the grooves E′ made in the inside of the brackets D, secured to the car body B by bow bolts E.

To hold the plough or scraper in its proper position, and at the same time allow it to yield to unyielding obstructions, I use a stiff "double" spring, K, which I pivot to the bracket D at *e* and connect it to beam F by the link J and carry the "double" L of the spring back around the pivot, so as to bear against the plate *m*, on the block P, to which the brackets D are bolted. By these means the scraper is held up with sufficient firmness to scrape off the loose snow and dirt, and at the same time has a yielding property which keeps it from being broken in case it strikes any unyielding obstruction.

Ordinarily the weight of the scraper will be sufficient to keep it down upon the track with sufficient force to do its work, but should the mud be stiff or the snow hard, so as to require a greater vertical force, such force I obtain by raising the pin I against the foot of the spring, this pin being made movable to that end.

To keep the scraper on the track it is necessary to brace it laterally, and the braces fulfilling this function must be so arranged as not to interfere with its free action in other respects. To this end I fit the clamp G loosely around the beam and from it carry two braces, *a a*, on each side of the beam to a hinge joint, *v* (in dotted
lines), on each side of the brackets D. There are four braces
13 in all, which converge from the clasp to the point *v* in one
direction and diverge from the clasp to the same point in the

other, as shown, in Figs. 2 & 1. By this means the beam is firmly braced on each side, and at the same time left perfectly free to raise and fall and to vibrate longitudinally on the pivot *r*.

To enable the driver to raise the scraper from the track when its use is not required I connect a cord, *b*, to the clasp G and carry it over the drum H, fixed under the front end of the car body, on a shaft, which may be turned by any convenient means so as to raise the scraper off the track.

The scraper is attached to the beam by a band, T, passing around the back side of it, as shown by Fig. 3. This figure also shows the position in which the scraper sets across the track.

Having thus described the construction and operation of my invention, what I claim, and desire to secure by letters patent, is—

The combination, arrangement, and mode of supporting the plough beam F, with the groove E′, plough, and car body, as and for the purpose herein set forth.

JAMES SHERIDAN.

Witness-:
Z. D. LANSING.
E. SPENCER.

14 Defendant's Exhibit Johnson & Bolton Patent. H. E. T., Ex.

(2–175.)

20446.

Department of the Interior.

[Vignette.]

United States Patent Office.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Johnson and Bolton April 21, 1663, number 38229, for improvement in track-clearers.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 25th day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office United States of America.]

E. M. MARBLE,
Commissioner.

[Seal of Circuit Court, Connecticut.]

15 (2–157.)

No. 38229.

[Vignette.]

United States of America to all to whom these letters patent shall come:

Whereas Job Johnson & Joseph Barber Bolton, of Brooklyn, New York, have alleged that they have invented a new and useful improvement in track-clearers, which, they state, has not been known or used before their application; have made oath that they are citizens of the United States; that they do verily believe that they are the original and first inventors or discoverers of the said improvement, and that the same hath not, to the best of their knowledge and belief, been previously known or used; have paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said Johnson & Bolton, their heirs, administrators, or assigns, for the term of seventeen years from the twenty-first day of April, one thousand eight hundred and sixty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said Johnson & Bolton in the schedule hereunto annexed, and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this twenty-first day of April, in the year of our Lord one thousand eight hundred and sixty-three, and of the Independence of the United States of America the eighty-seventh.

[SEAL.] J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
D. P. HOLLOWAY,
Commissioner of Patents.

(Here follows diagram marked page 16.)

17 *Specification Forming Part of Letters Patent No.* 38229, *Dated April* 21, 1863.

To all whom it may concern:

Be it known that we, Job Johnson and Joseph Barber Bolton, of Brooklyn, in the county of Kings and State of New York, have invented, made, and applied to use a certain new and useful track-clearer and wheel protector for railroads, and we do hereby declare

Johnson & Bolton.

Track Clearer.

No. 38,229. Patented Apr. 21, 1863.

Fig. 1.

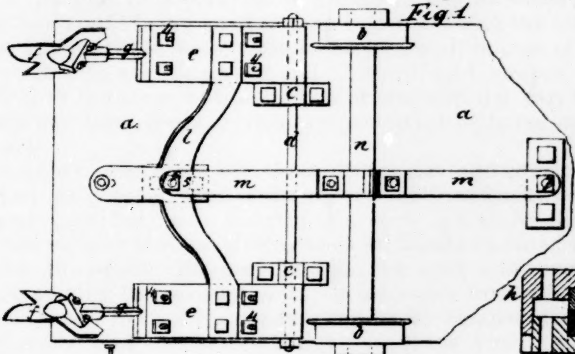


Fig. 5.

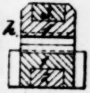
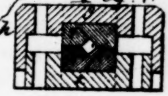


Fig. 4.



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Ry Co.
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Fig 3

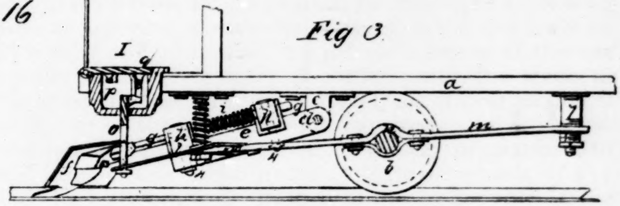
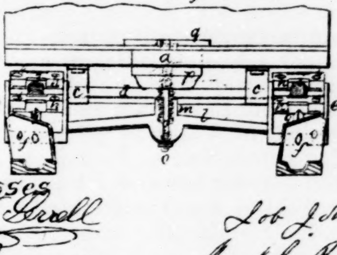


Fig. 2.



Witnesses
Lemuel W. Serrell
Thos Geo. Harold

Inventor
Job Johnson
Joseph Barber Bolton

the following to be a full, clear, and exact description of our said invention, reference being had to the annexed drawing, making part of this specification, wherein—

Fig. 1 is an inverted plan of our track-clearer.

Fig. 2 is an end view of the same, and

Fig. 3 is a section, longitudinally, of the car.

Similar marks of reference denote the same parts.

Scrapers and brushes have heretofore been fitted upon the forward ends of locomotive engines and railroad cars to move obstructions, but the rise or depression of the car or engine while under
18 motion would bring such scraper in contact with the track or else elevate the same so as to be useless, and, in case of coming in contact with a spike or the end of a rail, said scraper would not rise clear of the same, but be broken or else stop the car. This particularly has been the case with scrapers fitted to horse cars on city railroads.

Our invention overcomes all these difficulties and consists in a track clearer or scraper upon a sliding rod inclined backward and upward, and provided with a spring, in such a manner that the scraper rises as it yields in sliding back with said inclined rod in order to lift any article that may be upon the track and capable of being lifted and by the inclination of such scraper throw the same off to the side, and in case the article taken by the scraper is immovable, such as the end of a rail or a spike head, the yielding of the scraper, causing it to run back and up, raises the scraper until it pass over any such obstruction. We also make use of a lever, in
19 combination with such track-clearer, for raising or depressing the same in accordance with the position of the car body on the springs, whereby any additional weight or lurching of the car cannot bring the scrapers violently in contact with the track, as would otherwise be the case, and we fit such track clearer so that it can be raised up out of the way when not required.

In the drawing *a* represents a portion of the car or platform to which the said track-clearer is connected. *b b* are the wheels, of any usual character. *c c* are brackets attached to the under side of the platform *a* and receiving the cross-bar *d*, that forms a hinge for the stocks *e e* of the track-clearers *f f*, so that said stocks may swing on the said shaft *d* as the track-clearers themselves rise and fall. Each track-clearer *f* is formed of a metallic plate of a shape adapted to the track and diagonal thereto, and said plate is formed with or connected to a metallic shoe piece fastened at the end of a slide bar, *g*, that passes through the bearing boxes *h h* on the stock *e*. These bearing boxes *h h* are formed, as represented in Figs. 4 and 5,
20 with composition boxes 1 1, recessed into the bed block 2 and strap 3, and bolts 4 hold these boxes in place on *e* and connect the parts together, at the same time allow the boxes 1 1 to be easily replaced in case of wear.

Around the slide bar *g* is a spring, *i*, acting between the rear box, *h*, and a collar, *g*.

It will now be seen that the track-clearer, resting upon the track, will throw out dirt, snow, stones, or other obstructions that may ac-

cumulate, and in case said clearer *f* strikes against the end of a rail or any other fixed object it will slide back, compressing the spring *i* and thereby attaining an elevated position, so as to run over such object, the spring again projecting the clearer forwards and downwards so soon as it is clear of such obstruction. It is necessary, however, that this clearer be sustained at a given point from the track, in order that the stock *e* may not turn or hang down below this point. A screw may be used for this purpose, applied to each
21 of the stocks of the track-clearers, but I prefer and use the cross-bar *l*, extending from one stock to the other, and fitted with the stud 5, around which is a spring acting on this cross-bar *l* to keep it down, and 6 is a nut on the end of this stud for regulating the distance to which the track-clearers may descend.

In cases where this device is connected to the bottom of the platform the rise and fall of the car on its springs would cause the track-clearer to be heavily in contact with or entirely clear of the track. We therefore make use of a compensating movement applied to the track-clearers, which raises them as much as they would be depressed by the descent of the car, and *vice versa.* *m* is a lever, having the axle *n* of the wheels *b* as its fulcrum and connected about midway between the shaft *d* and the clearers *f* to the cross-bar *l*. We have represented the end of this lever as setting over the stud 5. At the other end this lever *m* is connected by a stud, 7, to the bottom of the car.

The car being in a normal position, the nut 6 is adjusted
22 until the clearers are very slightly raised from the track. Then the opposite end of this lever *m* is retained in position by set nuts or washers on each side of the back end at the stud 7, the parts being left sufficiently loose, however, to allow of the motion given to this end of the lever *m* by the rise and descent of the car on its springs.

As the stud 7 may press down one end of the lever *m* the other is raised, which lifts the clearers in the correct proportion to the descent of the car, so as to prevent said scraper bearing too hard on the track, and as the car rises on its springs the reverse movement takes place.

A lever of this character might be applied on each side if the cross-bar *l* were dispensed with.

The spring around the stud 5 acts to keep the clearers down, but will yield for them to rise if required.

In order to raise this track-clearer when passing switches, running on turn-tables, or when the car is going backward, we provide the rod *o* with a T head. The lower end of this rod passes
23 through an eye on an arm projecting from the cross-bar *l*, and the T head is in a socket, *p*, in the floor or platform *a*. In this socket are two vertical grooves, *s*, receiving the ends of this T head and allowing the same to descend to the bottom of the socket; but when the driver or attendant, by hand or a hook, draws up this rod *o* the track-clearer is lifted bodily, and by turning the T head partly around into short notches 9 the parts are held in this elevated position.

A cover, *q*, may be fitted to this socket *p*.

This track-clearer acts in manner aforesaid and yields and rises when throwing off any obstruction and overrides the ends of rails or other fixed parts and is not broken in so doing. This device also is a wheel protector, as it would push away a person's hand or foot or remove a child in case of a fall in front of the car.

What we claim and desire to secure by letters patent is—

24 First. A track-clearer fastened upon the end of a slide that is inclined backwards and upwards and fitted with a spring or its equivalent, substantially as specified, whereby the said track-clearer rides over and clears the ends of rails or other rigid parts with which it may come in contact, as set forth.

Second. We claim the stocks *e* and boxes *h*, constructed as specified, in combination with the track-clearers *f* and sliding rods *g*, as set forth.

Third. We claim the lever *m*, in combination with the track clearers *f*, said lever being fitted and acting as and for the purposes specified.

Fourth. We claim the rod *o* and socket *p*, in combination with the track-clearers *f f*, for the purposes and as specified.

In witness whereof we have hereunto set our signatures this 9th day of February, 1863.

JOB JOHNSON.
JOSEPH BARBER BOLTON.

Witnesses:
LEMUEL W. SERRELL.
THOS. GEO. HAROLD.

Ex'd: J. A. W., M. McK.

[Endorsed:] 20446. D., '83.

25 DEFENDANT'S EXHIBIT SHERIDAN 1864 PATENT. H. E. T., Ex.

(2–175.)

.20446.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted James Sheridan April 19, 1864, number 42411, for improvement in snow-plows.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 25th day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

E. M. MARBLE,
Commissioner.

[Seal of Circuit Court, Connecticut.]

26 (2–157.)

No. 42411.

UNITED STATES OF AMERICA.

[Vignette.]

To all to whom these letters patent shall come:

Whereas James Sheridan, of St. Louis, Missouri, has alleged that he has invented a new and useful improvement in snow-plows, which he states has not been known or used before his application; has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said improvement and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said James Sheridan, his heirs, administrators, or assigns, for the term of seventeen years from the nineteenth day of April, one thousand eight hundred and sixty-four, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvement, a description whereof is given in the words of the said James Sheridan in the schedule hereunto annexed and is made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this nineteenth day of April, in the year of our Lord one thousand eight hundred and sixty-four, and of the Independence of the United States of America the eighty-eighth.

[SEAL.]

J. P. USHER,
Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
D. P. HOLLOWAY,
Commissioner of Patents.

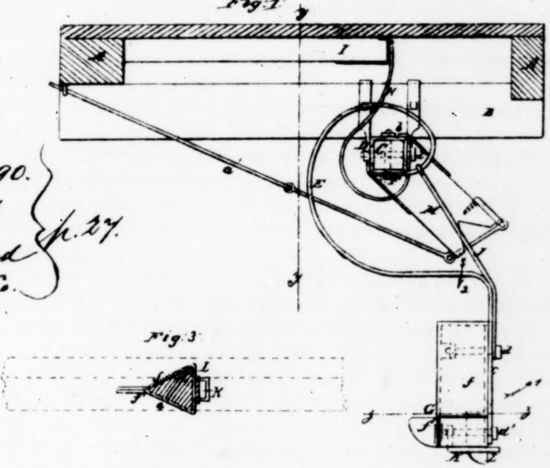
(Here follows diagram marked p. 27.)

J. Sheridan

Track Clearer.

No. 42,411. Patented Apr. 19, 1864.

Fig. 1.



No. 290.
Day
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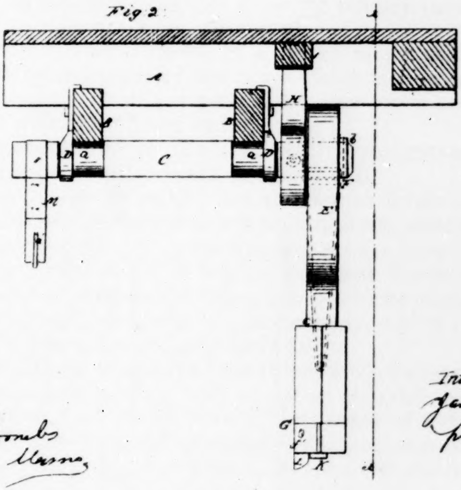
F. H. and
W. Ry C.
} p. 27.

Fig. 3.

Fig. 2.



Witnesses
J. W. Coombs
Henry Marno

Inventor
James Sheridan
per Munn & Co
Attorneys

28 *Specification Forming Part of Letters Patent No.* 42411, *Dated April* 19, 1864.

To all whom it may concern:

Be it known that I, James Sheridan, of St. Louis, in the county of St. Louis and State of Missouri, have invented a new and improved snow-plow for city or street railroad cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of my invention applied to a car, the bottom portion of the latter being in section, as indicated by the line *x x*, figure 2; figure 2, a front view of the same, the bottom portion of the car being in section, as indicated by the line *y y*, figure 1; figure 3, a horizontal section of the same taken in the line *z z*, figure 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a novel manner of attaching the snow-plow to the car, whereby the former is allowed to yield or
29 give to obstructions which may lie in its path, as well as to the friction produced by the bearing of the plow against the sides of the rails in turning curves, the plow being also allowed to yield or give under a vertical movement of the car or a variation of the hight of the same caused by the play or elasticity of the car springs under different loads, the plow also, by the arrangement or mode of attachment, being capable of being readily raised from the rail at the will of the driver or attendant.

The invention further consists in a novel mode of constructing the plow, whereby the parts of the same which are exposed to wear may, when worn, be readily replaced by new ones and the plow always kept in proper working order.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A A represent the two side pieces of the bottom frame of a railroad car; B B, two platform supporters, and C a shaft, which may be of metal or a suitable hard wood and of square form transversely
30 with two cylindrical portions, *a a*, which are embraced by hangers D D, suspended from the platform supporters B B. This shaft C is at right angles with the car body, and it is allowed to turn freely in its bearings or hangers D D.

To the shaft C there is attached the upper end of a spring, E, constructed out of a flat bar of steel or other suitable metal. This spring may be attached to the shaft C by means of a staple, F, the shanks of which pass through the shaft and have nuts *b* on their upper ends, the spring E extending up in front of shaft C, over its top, down behind it, and then underneath it in close contact, where it is secured by the staple F, and then projecting upward and in contact with the front side of the shaft, as shown clearly in figure 1.

The curve of the spring approximates to the form of the letter C, its lower part, *c*, having a vertical position, but strictly forming no

part of the spring. This spring E is the princip*le* one of the invention, and has the snow-plow G attached to it—to the part *c* thereof—and it will yield or give vertically, and also in a backward
31 and upward direction, the latter movement being indicated by the arrows 1, and the former by the arrows 2, in figure 1.

To the shaft C there is attached another spring, H, which is curved similarly to E, but extends around the shaft in a reverse direction to the latter, and is secured to the shaft C by a bolt, *d*, which passes through said shaft at right angles to the staple F, which, in connection with the bolt *d*, will, if the shaft C be of wood, prevent the same from being split.

The upper end of the spring H, when the plow is at work, bears against a stop, I, attached to the under side of the platform or flooring J of the car, as shown clearly in figure 1.

The plow or scraper G is constructed of a piece of wood, *e*, of trilateral form in its transverse section, as shown clearly in figure 3, and covered with sheet metal *f*, the lower part, *f′*, of which extends forward of the part *e*, and is curved upward like a sled-runner, as shown clearly in figure 1. The scraper is secured to the part *c* of the spring E by two square-headed bolts, *d d′*, the upper one,
32 *d*, holding a link, J, through which the upper part of the spring E passes, the link preventing the spring from stretching downwards.

To the bottom of the plow or scraper G there is attached a metal plate, K, the front part of which extends upward in the part *e* of the plow or scraper and serves as a nut for the lower bolt, *d′*, the other part of K bearing against the bottom of *e* and running upon the top of the rail.

L is a spur or guard, which is formed of a metal plate inserted vertically into the lower part of *e* at its inner side, so as to bear against the inner sides of the rails. This spur or guard may be secured in proper position by screws or bolts.

As the car is drawn along, the plow or scraper G runs upon the rail directly in front of the wheel, there being a plow or scraper directly in front of each forward wheel. The spring E admits of the plow or scraper yielding or giving backwards to any obstruction which may lie in its path, the spring H also yielding or giving to a certain extent and serving as an auxiliary to spring E.
33 The plow or scraper is thereby allowed to pass over obstructions which may be on the rail, and also to yield or give when the spur or guard L presses heavily against the inner side of the rail, as in passing over curves. The plow or scraper may be raised up free from the rail at any time by having a crank, M, attached to the inner end of the shaft C and a chain or rod, *a′*, connected to said crank, which passes up to the end of the platform, so as to be within reach of the driver or attendant. The spring E, in consequence of being curved as shown, admits of the car falling or rising under the weight of its load without at all affecting the operation of the plow or scraper.

The plate K runs upon the upper surface of the rail, and when worn by use may be readily replaced by a new one, and the front

S. HUTCHINSON.

Gang Plow.

No. 56,942

Patented Aug. 7, 1866.

No. 290
Day
Ft. W. & W.
Ry Co.
p. 36

Fig. 1

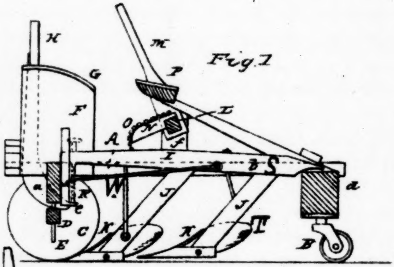
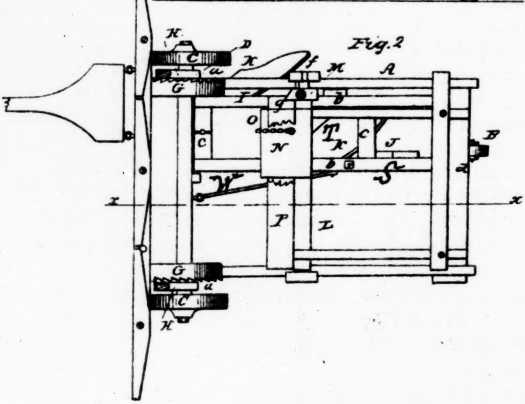


Fig. 2



Witnesses
J. W. Coombs
Wm. Trewin

Inventor
Saml. Hutchinson
Per Munn & Co
Attorneys

projecting curved part, *f′*, of the plow or scraper admits of the latter passing over inequalities in the rails or over projecting ends of the same.

Although only one plow or scraper has been described there are four applied to each car, one at the outer side of each wheel; but, as they are all constructed in precisely the same way, a description of one of them will answer for all. 34

Having thus described my invention, what I claim as new and desire to secure by letters patent is—

1st. The spring E, attached to the shaft C, in connection with the spring H, or an equivalent projection, also attached to shaft C, and the stop I, attached to the under side of the platform or bottom of the car, and the plow or scraper G, attached to the spring E, all arranged either with or without the link J, substantially as and for the purpose herein set forth.

2nd. Constructing the plow or scraper G of a triangular portion, *e*, of wood, covered with sheet metal *f* and provided at its lower end with a curved, projecting front piece, *f′*, an adjustable plate, K, and spur or guard L, substantially as herein set forth.

JAMES SHERIDAN.

Witnesses:
THOMAS P. BEATY.
BERNARD BEATY.

Ex'd: E. A. M., H. M. H.

[Endorsed:] 20446. D., '83.

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35 DEFENDANT'S EXHIBIT HUTCHINSON PATENT. H. E. T., Ex.

S. Hutchinson. Gang plow. #56942. Aug. 7, 1866.

(Here follows diagram marked page 36.)

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37 UNITED STATES PATENT OFFICE.

SAMUEL HUTCHINSON, of Griggsville, Illinois.

Improvement in Gang Plows.

Specification forming part of Letters Patent No. 56942, dated August 7, 1866.

To all whom it may concern:

Be it known that I, Samuel Hutchinson, of Griggsville, in the county of Pike and State of Illinois, have invented a new and improved gang-plow; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention relates to a new and improved means for regulating the depth of the penetration of the plows, and also to a means for raising and lowering the plows and retaining them in the ground when the device is at work, as hereinafter fully shown and described.

A represents the frame of the machine, which is of rectangular form, and is supported at its rear end by a caster-wheel, B, and by two wheels, C C, at its front end. The axle D of the wheels C C has two holes made through it for pendent guide-rods E E, at the front end of frame A, to pass loosely through, and to each side of the front part of the frame A there is attached an upright slab or board, F, the upper ends of which are rounded to form a portion of a circle and have metal toothed racks G permanently secured to them.

To each side of the front part of the frame A there is also attached a lever, H, and the lower ends of these levers are curved in segment form, as shown at *a* in Fig. 1, and these segment portions *a* rest or bear upon the axle D, and it will be seen that by adjusting the levers H the front part of the frame A may be raised or lowered either horizontally or one side raised higher than the other and the frame retained in the position desired by having the upper parts of the levers H engage with the racks G. This adjustment of the frame A is designed to regulate the depth of the penetration of the plows in the earth.

I represents a frame composed of two parallel bars, *b b*, connected by bars *c*. This frame I has two standards, J J, attached to it, with plows K K at their lower ends. The ends of the frame I rest loosely in frame A, the back end of I resting upon the rear cross-piece, *d*, of A, and the front end resting upon cleats *e* when I is fully down.

L is a horizontal shaft, the ends of which are fitted in bearings *f f* at the sides of frame A. This shaft has a lever, M, at one end of it, and has a plate, N, projecting from it, which plate is directly over the frame I, and a chain, O, is attached to the inner end of N and to frame I.

P is the driver's seat, attached to supports Q Q, which are secured to the rear part of frame A, and by drawing back the lever M the front part of frame I will be raised, and consequently the plows K, and the plows may be retained in an elevated position by adjusting the lever in a notch in a plate, *g*, at one end of the driver's seat.

When the plow-frame I is depressed the plate N of shaft L bears upon it and holds the frame I down, and the plows are retained in the ground.

I design, in practice, to have a gage-screw, R (shown in red), pass vertically through the front part of the frame I to regulate the depth of the penetration of the plows.

The draft-pole I design to have attached to the front end of the frame A in such a manner that it may be adjusted laterally in order to give the plows more or less land and to admit of three horses being driven abreast. This, however, has been previously done with similar or analogous machines.

The advantage of the invention consists in the facility with which the depth of the penetration of the plows may be regulated and the holding of the plows in the ground.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. The elevating or adjusting of the frame A of the machine in a vertical direction, in order to regulate the depth of the penetration of the plows, by means of the levers H H, provided with lower segment ends, *a*, and secured to the sides of frame A, in combination with the pendent pins E E, attached to frame A, and passing loosely through the axle D, substantially as shown and described.

38 2. The plow-frame I, fitted within the frame A and connected by a chain, O, with a plate, N, attached to a shaft, L, over frame I, whereby the plow-frame and plows may be raised, when desired, and the plows, when at work, retained in the ground, substantially as set forth.

The above specification of my invention signed by me this 22d day of December, 1865.

SAMUEL HUTCHINSON.

Witnesses:
WILLIAM DONOVAN.
JOHN E. HIGDON.

39 DEFENDANT'S EXHIBIT ELLIOTT PATENT. H. E. T., Ex.

(2–175.)

20446.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted C. C. Elliott March 5, 1867, number 62535, for improvement in snow-scraper for locomotives, &c.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 25th day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

E. M. MARBLE,
Commissioner.

40

No. 62535.

The United States of America to all to whom these letters patent shall come:

Whereas C. C. Elliott, of Escanaba, Michigan, has alleged he has invented a new and useful improved snow-scraper for locomotives, &c., which he states has not been known or used before such invention; has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said invention, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant, according to law, to the said C. C. Elliott, his heirs, administrators, or assigns, for the term of seventeen years from the fifth day of March, one thousand eight hundred and sixty-seven, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention, a description whereof is given in the schedule hereunto annexed and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this fifth day of March, in the year of our Lord one thousand eight hundred and sixty-seven, and of the Independence of the United States of America the ninety-first.

[Seal Patent Office, United States of America.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
T. C. THEAKER,
Commissioner of Patents.

(Here follows diagram marked p. 41.)

42

UNITED STATES PATENT OFFICE.

C. C. ELLIOTT, of Escanaba, Michigan.

Letters Patent No. 62535, dated March 5, 1867.

Improved Snow-Scraper for Locomotives, &c.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, C. C. Elliott, of Escanaba, in the county of Delta and State of Michigan, have invented a new and improved snow-scraper for locomotives and cars; and I do hereby declare that the following is a full, clear, and exact description thereof, which

C. C. ELLIOTT.

Car-Track Clearer.

No. 62.535. Patented Mar. 5, 1867.

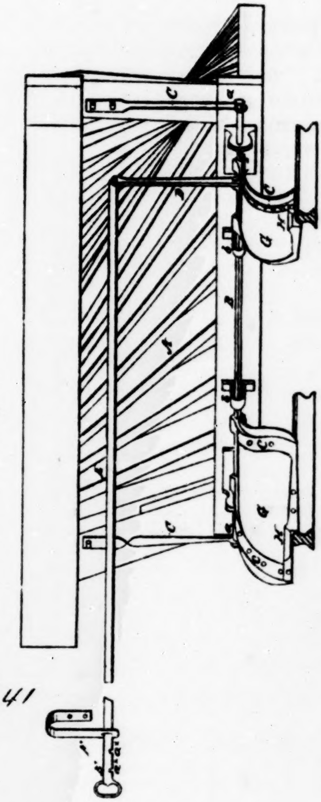


Fig. 1

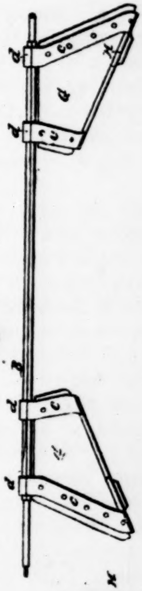


Fig. 2

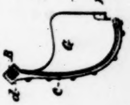


Fig. 3

No. 290.
Da 1
F H and
W Ry Co } p. 41

Witnesses:

F. A. Jackson
Wm Trewin

Inventor.

C. C. Elliott

will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my invention applied to a "pilot" or "cow-catcher" of a locomotive; figure 2, a detached plan or top view of the scrapers; figure 3, a section of one of the scrapers, taken in the line *x x*, Fig. 2.

Similar letters of reference indicate corresponding parts.

This invention has for its object the constructing of scrapers and the attaching of the same to a "pilot" or "cow-catcher" of a locomotive, or directly to a car, in such a manner that the rails will have the snow scraped from them in a perfect manner, so as to leave a free or unobstructed surface for the car wheels to run upon, and the scrapers allowed to yield both vertically and laterally, so as to conform to the unevenness of the rails.

A represents a "pilot" or "cow-catcher," which may be constructed and applied to a locomotive in the usual or any proper manner, and B is a horizontal shaft, the ends of which are fitted in bearings *a a* at the lower ends of springs C C, secured one at each side of the rear of the "pilot" or "cow-catcher," the shaft B also passing through guides or bearings *b b*, which admit of a longitudinal movement of the shaft. D is an arm, which extends upward from the shaft B and has a bar, E, pivoted to its upper end, said bar being supported at its outer end in a spring, F, and connected therewith by notches a^x, which spring admits of a longitudinal play or movement of the bar E when necessary. On this shaft B there are secured two scrapers, G G, of curved form, their front or face sides being concave, as shown clearly in Figs. 1 and 3. These scrapers have metal straps *c*, riveted to their rear sides and formed with eyes *d* at their upper ends, which eyes are keyed or otherwise secured on the shaft. The lower ends of the scrapers have steel shoes H attached to them to work over the upper surfaces and sides of the rails, as shown clearly in Fig. 1. From the above description it will be seen that as the locomotive or car is propelled along the scrapers will scrape the snow off from the rails, the spring F, in which the bar E rests, keeping the scrapers down to their work, but still allowing the latter to rise to conform to the inequalities of the surface of the rails, while the springs C C admit of the scrapers having a lateral play or movement to conform to any lateral irregularities, curves, or inequalities of the rails. The device is extremely simple and may be constructed and applied, at a small cost, to either steam or horse cars.

Having thus described my invention, what I claim as new and desire to secure by letters patent is—

The springs C, arm D, and notched bar E, and spring F, in combination with the scraper-carrying shaft B, when applied and operating substantially as described, for the purpose specified.

C. C. ELLIOTT.

Witnesses:
H. ANDERSON.
GEO. W. CUSHING.

[Seal Patent Office, United States of America.]

43 DEFENDANT'S EXHIBIT WATTLES PATENT. H. E. T., Ex.

H. J. Wattles. Wheel plow. 68673. Sept. 10, '67.

44 UNITED STATES PATENT OFFICE.

H. J. WATTLES, of Rockford, Illinois.

Improvement in Gang-Plows.

Specification forming part of Letters Patent No. 68673, dated September 10, 1867.

To all whom it may concern:

Be it known that I, H. J. Wattles, of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful gang-plow; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, forming part of this specification, and to the letters of reference marked thereon.

Figure 1 shows a plan view of the machine. Fig. 2 shows a side elevation. Fig. 3 shows the raising and lowering devices of wheel H′.

My invention has reference to an improved device for plowing ground, and it consists of certain combinations of devices hereinafter to be set forth.

In the drawings, the plows A A are secured to the frame B B, the front end of which moves up and down on the stationary guide C, which is secured perpendicularly to the axle D. The piece E is secured to the axle D at right angles to the guide-piece *c*, extending backward over the plows A A, its rear end supported by the caster-wheel F, which, with the wheels H H′ on the axle D, supports the entire plowing device. The plow-frames B B are supported by the chain I, secured to the pin *a* at their rear end, which, passing over the friction-sheave *b* in the piece E, is secured to the crank-shaft *d*, Fig. 2. The chains J J′, secured to the front end of the frames B B, are also secured to the crank-shaft *d* (supported by the guide-piece C), by the rotation of which the plows are raised and lowered always parallel to the surface of the ground, being held in any desired position by the spring-pawl *e*, taking hold upon the ratchet-wheel *i* on said crank-shaft, Fig. 1. The wheel H′ is secured to the sliding piece K, moving in the perpendicular groove L, secured to the axle D. The ratchet upon the slide K is acted upon by the segment-lever M, thereby raising and lowering the wheel H′, for the purpose of keeping the axle D, and also the plows A A, level, whatever depth of furrow the wheel H may be in, and are held in such position by the spring-stop *h*, acting upon the segment *k*, Fig. 3. The adjustable curved rod N, secured on the frame B in front of the plow, will turn the stubble, weeds, and other trash lengthwise in the furrow, thereby insuring their being completely covered by the plow, a very important consideration. The doubletree or evener O is secured by clevis

H. J. WATTLES.

Wheel Plow.

No. 68,673. Patented Sept. 10, 1867.

Fig. 1.

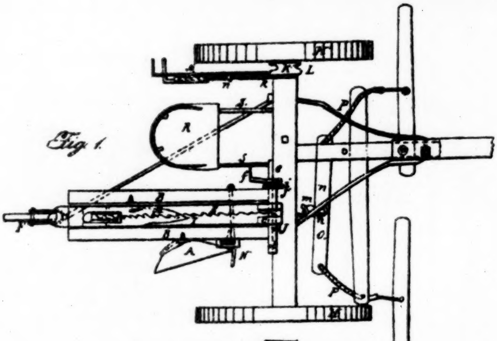


Fig. 2.

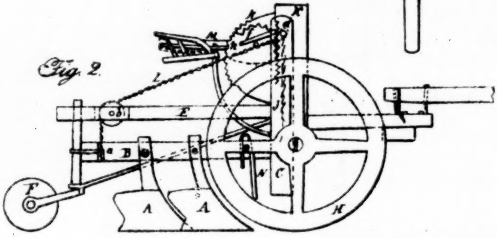
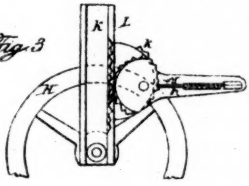


Fig. 3



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v.
T. H. and
W. Ry. Co
} p. 45

Witnesses:

W W Brown

E J Brown

Inventor:

H J Wattles

and ring to the hook *m*, directly to the plowing mechanism, and is adjusted by means of the holes *n n* in said evener for three or four horses, as may be desired. To this evener are secured the chains P P, the left-hand chain being required, usually, to be the longest, to enable all the horses except one to walk upon the unplowed ground. To these chains are hitched the horses for drawing the plowing mechanism. This manner of attaching the draft to the plows takes off all "side draft" and allows the use of a hinged tongue, or of working the plows without any tongue, as may be desired. The driver's seat R is supported on the springs S S, and is so located that the driver on the seat can adjust the height of the wheel H′, as also the depth of the plowing, for the latter purpose using the foot to throw out the pawl *e*, while with one hand the crank *f* is turned, as before described.

What I desire to claim as my invention, and secure by letters patent, is—

1. The combination and arrangement of the plowing-frame B B, wheels H. H′, caster-wheel F, frame-support E, chains I J J′, with crank *f*, operating substantially as described, and for the purpose set forth.

2. The combination and arrangement of the wheel H′ with the sliding support K, groove-piece L, segment-lever M, spring-stop *h*, with stationary segment *k*, when constructed and operating as described.

3. In combination with the chain-supports I J J′, the arrangement of the spring-pawl *e*, crank *f*, and ratchet-wheel *i*, operating substantially as described.

4. The combination of the stubble-turner N with a plowing mechanism, as described.

5. Attaching the team to the plowing mechanism by the evener O, and the chains P P, being of unequal length, the whole arranged to draw directly upon the plows in such manner as to avoid all side draft, substantially as described.

H. J. WATTLES.

Witnesses:

W. W. BURSON.
E. S. BROWN.

(Here follows diagram marked p. 45.)

46 DEFENDANT'S EXHIBIT WELLS PATENT. H. E. T., Ex.

E. B. Wells. Track-clearer. 73212. Jan. 7, 1868.

(Here follows diagram marked page 47.)

48 UNITED STATES PATENT OFFICE.

E. B. WELLS, of Northampton, Massachusetts.

Letters Patent No. 73212, dated January 7, 1868.

Improved Scraper-Attachment to Cars.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, E. B. Wells, of Northampton, Hampshire county, Massachusetts, have invented a new and improved scraper-attachment to cars; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal central section of a car, which is provided with my improved scraper-attachment.

Figure 2 is an end view of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide railroad cars with a device for keeping the track clear of snow, mud, and other obstructions. The device is chiefly applicable to street or horse cars, and consists in the use of scrapers or ploughs, one in front of each wheel, which are suspended from powerful springs that are attached to the under side of the car platform, and which are operated by levers attached at each end of the car.

A represents the platform of a railroad car. B B are the axles, on which the wheels C C are fixed in the ordinary way. D D are the scrapers or ploughs, of which one pair is arranged at either end of the car, one plough in front of each wheel. Each of these ploughs is secured to the lower end of a spring, E, the upper end of which is secured to the under side of the platform. The two springs at each end of the car are connected near to their lower ends by a cross-bar, F. The mechanism for working the ploughs must be such that it is capable of elevating or depressing the cross-bar, thereby throwing the ploughs either off or upon the track.

To the centre of the bar F is secured a stud, *a*, which projects upwards, as is clearly shown in the drawings. To the upper end of the stud *a* is pivoted the end of a horizontal bar, G, which is arranged longitudinally below the platform of the car, being sus-

E. B. Wells.

Imp^{d} Scraper Attachment to Cars.

No 73212 Patented Jan. 7, 1868.

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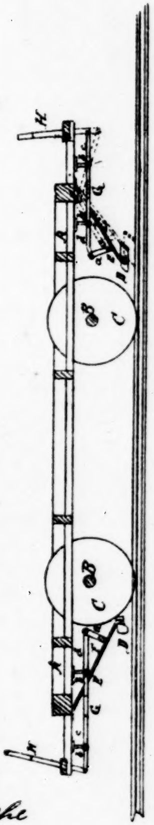

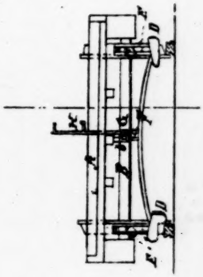

Witnesses.
Theo Tusche
J A Service

Inventor:
E. B. Wells
Per Munn & Co
Attorneys

pended from and pivoted to two ears, *b b*, which project from the under side of the platform, said bar G extending towards the end of the car under which the pair of ploughs is arranged. The bar G is jointed between the two ears, *b b*, or rather it consists of two separate pieces, *c* and *d*, of which each is pivoted, in its centre, to one of the ears, *b*, and their ends are pivoted together. The rear end of the piece *d* is pivoted to the stud *a*, while the front end of the piece *c* is pivoted to the lower end of an upright lever, H, which is arranged at the ends of the platform in such a manner that it can be moved up and down at pleasure. Teeth are formed on the lever H, or some other device is applied, whereby the same can be held in any position.

When the lever H is raised the bars *c* and *d* are in line and the scrapers are held up. By depressing the lever H, the bars *c* and *d* are inclined so that the point where they are connected is raised above the pivoting points on the ears *b*, as shown by red lines in Fig. 1. The connection of the bar *d* and stud *a* is then depressed, and thereby also the cross-bar F and the scrapers D, the latter being forced upon the rails, with the shape of which their lower edge conforms, so that, when the scrapers are thus lowered, and the car drawn ahead, the track will be cleared of all obstructions.

The connection of the bars *c* and *d* must be such that, although the bars are pivoted to the stationary ears *b*, they will be permitted to swing on the pins by which they are held to the said ears. For this purpose the forward end of the rod *d*, or the rear end of the bar *c*, is slotted, and a pin, which is secured to the rear end of the bar *c* or the front end of *d*, fits through the said slot in the opposite bar, and is on the front end of the slot when the bars are in line. The said pin by which the bars *c* and *d* are connected has thus full play in the said slot, and enables the bars *c* and *d* to be inclined, as shown by red lines in Fig. 1. It is evident that only that pair of scrapers is depressed which is in front of the car, the rear pair being held up.

By arranging the scrapers on both ends the car can be drawn in either direction and clear the track, while in all the track-scrapers now in use the car can only be moved in one direction. Being suspended from the springs E, the scrapers will accommodate themselves to any slight variations or inequality in the upper surface of the rails. The lever H can be made to project but little above the surface of the platform, and may therefore be so arranged that it can be easily operated by the driver's foot (if on a horse-car), leaving both his hands entirely free, which is of great importance. Generally at least double teams are used for these scraper cars, requiring to be controlled by at least the two hands of one driver.

49 Having thus described my invention, what I claim as new and desire to secure by letters patent is—

1. The adjustable scrapers D, held down upon the track by means of pressure upon the bar H, the spring E permitting said scrapers to yield to the inequalities of the track, as herein set forth, for the purpose specified.

2. The construction and arrangement of the scrapers D, attached

to the end of the inclined springs E, curved bar F, stud *a*, slotted and jointed rod G, its sections *c d*, pivoted to the ears *b b*, the section *c*, connected to the operating bar H, as herein set forth, for the purpose specified.

E. B. WELLS.

Witnesses:
H. K. STARKWEATHER.
E. B. LOVERING.

50 DEFENDANT'S EXHIBIT OTIS PATENT. H. E. T., Ex.

(2–175.)

20446.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Samuel A. Otis June 2, 1868, number 78537, for improvement in railway-track scraper.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 25th day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

E. M. MARBLE,
Commissioner.

51 (2–155.)

No. 78537.

The United States of America to all to whom these letters patent shall come:

Whereas Samuel A. Otis, of Boston, Massachusetts, has alleged that he has invented a new and useful improved railway-track scraper and has made oath that he is a citizen of the United States, that he verily believes he is the original and first inventor or discoverer of the said invention, and that the same hath not, to his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars and presented a petition to the Commissioner of Patents praying that a patent may be issued therefor:

These are, therefore, to grant to the said Samuel A. Otis, his executors, administrators, or assigns, for the term of seventeen years

S. A. Otis,

Track Clearer.

No. 78,537. Patented June 2 1868

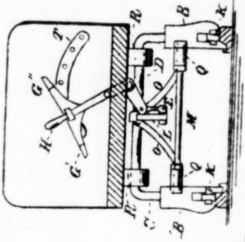

Fig. 3

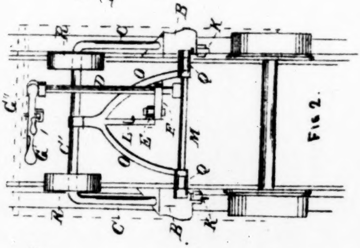

Fig. 2

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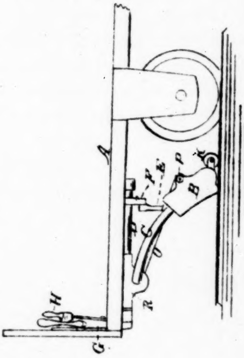

Fig. 1

Witnesses: Frank L. Parker
A. Van Berry

Samuel A. Otis Inventor

from the second day of June, one thousand eight hundred and sixty-eight, the full and exclusive right and liberty of making, using, and vending to others to be used, the said invention, a description whereof is given in the annexed schedule and made a part of these presents.

In testimony whereof I have caused these letters to be made patent and the seal of the Patent Office to be hereunto affixed.

Given under my hand, at the city of Washington, this second day of June, in the year of our Lord one thousand eight hundred and sixty-eight, and of the Independence of the United States of America the ninety-second.

[Seal Patent Office, United States of America.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.
A. M. STOUT,
Acting Commissioner of Patents.

(Here follows diagram marked p. 52.)

53 UNITED STATES PATENT OFFICE.

SAMUEL A. OTIS, of Boston, Massachusetts.

Letters Patent No. 78537, dated June 2, 1868.

Improved Railway-Track Scraper.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, Samuel A. Otis, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in track-scrapers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

To enable others skilled in the art to make and use my invention I will proceed to describe its nature, construction, and use.

The nature of my invention consists, first, in arranging the two shoes of a scraper and the connecting parts in such a manner that the shoes may automatically adjust themselves to the varying gauge of the track; second, in combining with the shoe a small roller, which allows the shoe to run very nearly but not quite in contact with the rail; third, combining with the scraper a peculiar device, so arranged that the scraper may be raised from or lowered to the track by a lever, which may be operated by the foot or hand.

Drawings.

Figure 1 is a side elevation of a part of a car, showing my improved track-scraper attached.

Figure 2 is a plan of the same.

Figure 3 is an end elevation of the same.

In all the drawings, B B represent the shoes or scraper, shaped as shown in the drawings, each being provided with a small truck-wheel, K, which serves to keep the shoe slightly elevated above the track, and consequently to save the wear of the shoe.

M, Figs. 2 and 3, is a rod passing freely through the shoes, having a head or screw nut on each end, one of which is shown in Fig. 1 by P. Q Q are sleeves, sliding freely upon the rod M, one end of each bearing against the shoe and the opposite end against the forked spring O O. By the above arrangement of the rod M, sleeves Q, and spring O it will be seen that the shoes B B may be made to approach each other, and thus accommodate themselves to a narrow gauge, the length of the rod M being such as to admit of the shoes B B fitting upon the widest gauge likely to occur on ordinary roads.

To admit of the above-described action, the supporting arms C C of the shoes are made flexible.

R R are housings upon which the arms C C are hinged. L is a lever attached to the bar C′. E is a link attached to the lever L and to the arm F of the rocker-shaft D, so if the said rocker-shaft is operated, as it may be, by the lever G the end of the lever L will be raised or lowered, carrying with it the arm C C and shoes B B. G G″ are two arms extending from the lever G, which serve as levers, to be acted upon by pressure of the foot. Thus, in Fig. 3, by pressing hard upon the arms G″, it will be pushed over towards T, which action would raise the arm F and, through it, the link E, the lever L, and thus the shoes B B. If the foot be placed upon the arm G′, Fig. 3, the shoes B B will be borne hard down upon the track.

T, Fig. 3, is a circular plate having a number of perforations, as shown, into which the pin, not shown in the drawings, attached to the handle H, may enter, and thus hold the lever G, and consequently the shoes B B, in any desired position.

What I claim as my invention and desire to secure by letters patent is—

1. The combination and arrangement of the shoes B B, sleeves Q Q, rod M, and fork O O, substantially as described and for the purpose set forth.
2. The combination, with the lever G, in a track-scraping machine, of the foot-lever G′ G″, substantially as described and for the purpose set forth.
3. The combination and arrangement of the lever L, the link E, and the rocker-shaft D, made substantially as described and for the purpose set forth.

SAMUEL A. OTIS.

Witnesses:
FRANK G. PARKER.
A. HUN BERRY.

[Seal Patent Office, United States of America.]

54 DEFENDANT'S EXHIBIT FOGARTY PATENT. H. E. T., Ex.

J. Fogarty. Track-clearer. . 94587. Sept. 7, 1869.

UNITED STATES PATENT OFFICE.

JOHN FOGARTY, of Brooklyn, New York.

Improved Safety Attachment for Street-Railway Cars.

Specification forming part of Letters Patent No. 94587, dated September 7, 1869.

To all whom it may concern:

Be it known that I, John Fogarty, of Brooklyn, in the county of Kings and State of New York, have invented a new and improved safety attachment for street-railroad cars; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of a portion of a street-railroad car to which my improvement has been attached. Fig. 2 is a detail sectional view of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a side view of a portion of a car, showing a modification of the device. Fig. 4 is a detail sectional view of the same.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved attachment for street-railroad cars, which shall be so constructed and arranged as to prevent any person or thing that may be upon the track from being run over by the wheels or from throwing the cars from the track, and it consists in the construction and combination of the various parts of the device, as hereinafter more fully described.

A represents the track, B the car-wheels, C the car or truck frame, D the brake-bar, and E the brake-shoes, about the construction of which parts there is nothing new.

F are the guards, which are hinged at their upper ends to the brake-bar D, as shown in Figs. 1 and 2, or to the brake-shoes E, according as the construction of the brake may render it most convenient. The guards F should be made of such a length as to reach nearly to the rails, and of such a form as to fit upon and rest firmly against the lower parts of the brake-shoes E. The guards F are connected by a cross-bar, G, which may be curved, as shown in Fig. 2, or straight, as shown in Fig. 4. To the middle part of the cross-bar G is pivoted the lower end of the short connecting-bar H, the upper end of which is pivoted to the rear end of the bent or elbow lever I. The lever I is pivoted at its angle to brackets or other suitable supports attached to the under side of the forward part of the car-frame C, and to its forward end is pivoted the rear end of the short connecting-bar J, the forward end of which is pivoted to the rear end of the bent lever K. The bent lever K is pivoted at its angle to the forward edge of the frame or platform of the car, and to its forward end is pivoted the lower end of the rod L, which passes up along the railing of the platform and is kept in place by passing through guides attached to said railing. By this construction and arrangement of levers and connecting rods, by drawing the rod L upward the guards F will be raised to allow the car to pass over obstructions or when not required for use.

M is a stop or catch attached to the forward side of the railing to receive the upper end of the rod L to hold the guards F raised.

In the modification of the device shown in Figs. 3 and 4 a rod, N, is used to hold the guards F raised, the lower end of which is pivoted to the cross-bar G, and the upper end of which has a hook formed upon it, which, when the guards F are raised, hooks into an eye attached to the under side of the frame C, and which, when the guards F are lowered, hooks into an eye or hook attached to the brake-bar D.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. The guards F, hinged to the shoes or bar of an ordinary brake, and resting, when in working position, against the lower parts of the brake-shoes, substantially as herein shown and described and for the purpose set forth.

2. The combination of the cross-bar G, connecting-bar H, bent lever I, connecting-bar J, bent lever K, rod L, and stop or catch M with each other and with the guards F, hinged to the brake D E, substantially as herein shown and described and for the purpose set forth.

3. The combination of the hooked rod N with the cross-bar G and guards F, substantially as herein shown and described and for the purpose set forth.

The above specification of my invention signed by me this 14th day of June, 1869.

JOHN FOGARTY.

Witnesses:

FRANK BLOCKLEY.
JAMES T. GRAHAM.

(Here follows diagram marked p. 55.)

J. Fogarty,

Track Clearer.

No. 94,587. Patented Sep. 7. 1869

Fig. 1

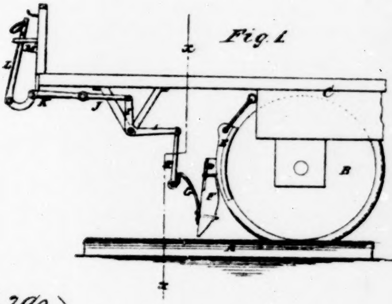

Fig. 2

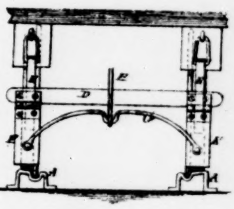

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Fig. 3

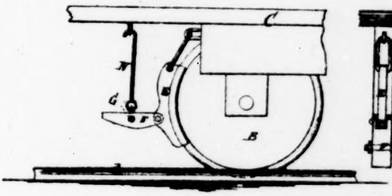
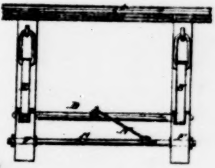


Fig. 4



Witnesses:

A. W. Almquist

Geo. W. Mabee

Inventor:

Jno. Fogarty

Per Munn & Co

Attorneys.

W. F. GOODWIN.

Mower.

No. 101,120. Patented March 22, 1870

Fig. 1.

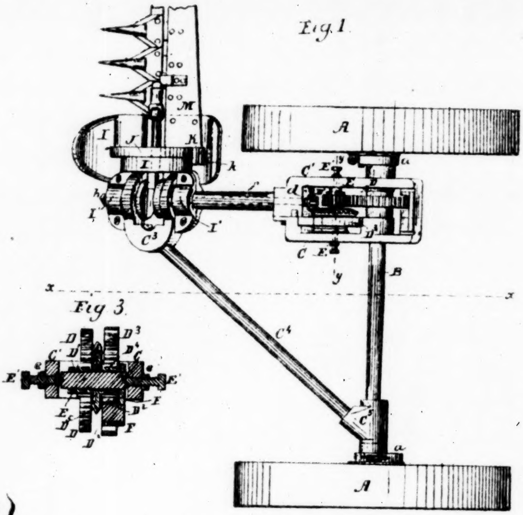


Fig 3.

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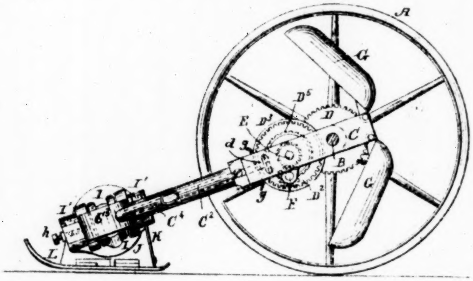
Fig. 2.



Witnesses:
A B Smith
H H Doubleday

Inventor
Wm F. Goodwin

By A. M. Smith
Attorney

56 DEFENDANT'S EXHIBIT GOODWIN PATENT. H. E. T., Ex.

W. F. Goodwin. Harvester. 101,120. M'ch 22, 1870.

(Here follows diagram marked p. 57.)

58 UNITED STATES PATENT OFFICE.

WILLIAM F. GOODWIN, of Metuchen, New Jersey.

Improvement in Harvesters.

Specification forming part of Letters Patent No. 101,120, dated March 22, 1870.

To all whom it may concern:

Be it known that I, William F. Goodwin, of Metuchen, in the county of Middlesex, State of New Jersey, have invented certain new and useful improvements in harvesting-machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan or top view of a harvesting-machine embracing my improvements. Fig. 2 is a longitudinal section of the same, taken in line x x, Fig. 1; and Fig. 3 is a transverse section through the frame and gearing, taken in line y y, Fig. 1.

Similar letters of reference denote corresponding parts wherever used.

Among the objects sought to be attained in the construction of harvesting-machines have been a compact arrangement of gearing for operating the cutters, such as would readily permit its being inclosed or boxed up to prevent its being obstructed by dirt or other foreign matter, and the combination of the cutting apparatus therewith in such manner that while the said cutting apparatus could conform freely to the surface of the ground over which it was drawn all cramping or binding of the gearing or of the parts coupling the same with the sickle-bar should be avoided.

My invention relates to a novel construction and arrangement of parts for accomplishing these objects, and will be fully understood from the following description in connection with the drawings, in which—

A A represent the main ground and drive wheels, mounted loosely on a common axle, B, and connected thereto by backing-ratchets at *a*.

C C′ represent the main or gearing frame, made by preference in two parts, which are perforated to receive the axle B, and are fastened together at their ends by horizontal bolts passing through them. The part C′ of the frame has a tubular arm or sleeve, C^2, attached to or cast with it, the forward or swinging end of which is provided with a yoke, C^3, from which a brace, C^4, extends obliquely to the axle B, and is connected therewith by a sleeve, C^5.

The portions C C' of the frame inclose the gearing arranged as follows, viz: D is a straight spur-wheel mounted upon and keyed to the axle B. E is a second short shaft mounted in frame C C' in a position parallel with the main axle B upon screw-pivot bearings E', which pass through the sides of the frame and are adjustable therein. The ends of the pivot-bearings E' are pointed or conical and fit into corresponding sockets in the ends of the shaft E, as shown in Fig. 3, or the ends of the shaft may be pointed to match sockets in the adjustable bearings, as may be found most convenient. By means of these adjustable pivotal bearings I can adjust the mesh of spur-gears D^5 *d*, thereby compensating for the wear of the cogs upon said gears, thus adding materially to their durability.

The bearings or screws E', when properly adjusted, may be held by jam-nuts *e*. The shaft E has keyed to it at one end a spur-pinion, D', and at its opposite end a traveling arm, F, the outer end of which is armed with a short stud or shaft, on which is mounted a transmitting wheel or pinion, D^2, which travels with the arm F and meshes with and receives motion on its own axis from a stationary internally-toothed rim, D^3, cast with or attached to the portion C of the frame.

D^4 is a straight pinion, mounted loosely on shaft E in the same vertical plane with the concentric internally-toothed rim D^3 and transmitting-pinion D^2, the latter engaging with said pinion D^4 and imparting motion thereto.

D^5 is a bevel-wheel cast with or rigidly attached to pinion D^4, from which motion is imparted to a bevel-pinion on the crank-shaft, and thence to the sickle-bar in the usual manner. The crank-shaft is extended beyond the wrist to which the pitman is attached, in order that it may be supported at its lower end.

G G' are concave lids or cap and bottom, made of a depth which, added to the depth of the frame, is sufficient to inclose the gearing, and are hinged at one end to the frame, as shown in Fig. 2.

g g are spring catches or clasps, which serve to hold the cap G and bottom G' in their closed position. The crank-shaft is mounted in the sleeve C^2 of the frame, and at its lower or forward end is supported against the end-thrust consequent upon the employ-
59 ment of bevel-wheels for driving the same by means of an adjustable screw-pivot, *h*, mounted in a sleeve or arm of yoke C^3.

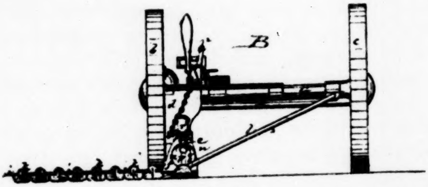
I is a coupling piece or frame for connecting the cutting apparatus with the main frame, said piece or frame consisting of a vertical annular hub or ring provided with horizontal arms, which embrace the yoke C^3 between them and serve, in connection with half-boxes I', to clasp the sleeve C^2 of the frame on opposite sides of said yoke, thereby forming the joint of the cutting apparatus on a line coincident with the axial center of the crank-shaft. The heel end of the finger-bar has an upright standard, J, attached to it, provided with an opening corresponding to that through the annular hub of coupling-piece I, and with flanged lips and grooves matching corresponding grooves and lips formed on the adjacent face of the annular hub of the coupling I for attaching the finger-bar to said coupling, and through said coupling to the main frame, as described.

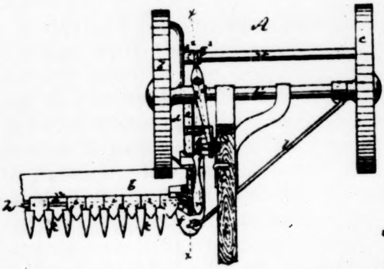
J. G. Perry.

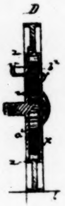
Mower.

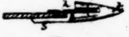
No. 104.489.

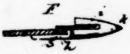
Patented June 21 1870











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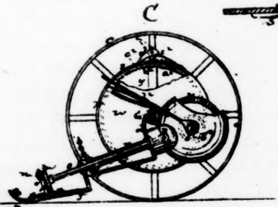
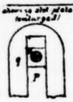


Detail showing slot plate q. &c (enlarged)



J. W. Perry
by his attys
Crosby, Halsted & Gould

Witnesses
S. B. Kidder
M. W. Frothingham

An upright spring, K, attached to the shoe L or to the heel end of the finger-bar M, is provided at its upper end with a pin or spur at *k*, which enters a hole in the annular hub I and serves to hold the cutting apparatus at the desired angle of presentation to the ground and to prevent the rotation of the same on its longitudinal axis or hub I. The cutting apparatus and shoe L may be of any desired or usual construction. In practice, however, the latter will be made of a width sufficient to extend underneath the forward or vibrating end of the main frame, and thus to serve to protect the latter and the crank-shaft and wheel from injury from obstructions in the path of the machine.

Having now described my invention, what I claim as new, and desire to secure by letters patent, is—

1. The arrangement of the stationary internally-toothed rim and planetary gear about a secondary shaft or pinion-shaft, lying parallel with the main axle of a harvesting-machine, as set forth.

2. The combination, in a harvester, of the shaft E, arm F, planetary gear D^2 D^3 D^4, bevel-wheel D^5, bevel-pinion *d*, and adjustable pivotal bearings E′, substantially as set forth.

3. The arrangement upon the secondary shaft E of the straight pinion or spur-gear D′, traveling arm F, carrying the transmitting-wheel D^2, pinion D^4, and bevel-wheel D^5, these parts being operated from the main axle through the stationary rim D^3, substantially as set forth.

4. The crank-shaft, constructed substantially as described, in combination with the adjustable pivotal bearing *h*, bevel-pinion *d*, and bevel-wheel D^5.

5. The annular hub or coupling-piece I, having arms provided with half-boxes I′, as set forth, in combination with yoke C^3, sleeve C^2, and standard J.

WM. F. GOODWIN.

Witnesses:
ALEX. MAHON.
H. H. DOUBLEDAY.

60 DEFENDANT'S EXHIBIT PERRY'S FIRST PATENT. H. E. T., Ex.

J. G. Perry. Harvester. 104,489. June 21, 1870.

(Here follows diagram marked page 61.)

62 UNITED STATES PATENT OFFICE.

JOHN G. PERRY, of Kingston, Rhode Island.

Improvement in Harvesters.

Specification forming part of Letters Patent No. 104,489, dated June 21, 1870.

To all whom it may concern:

Be it known that I, John G. Perry, of Kingston, in the county of Washington and State of Rhode Island, have invented improvements in mowing-machines and harvesters; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to mowing and reaping machines, and has particular reference to the construction and arrangement of the driving-wheels, ratchets, and pawls, gearing, carriage-frame, and cutter-bar connections.

The drawings represent such parts of the machine and mechanism as are necessary for clearly understanding my improvements.

A shows such parts in plan. B is a front elevation of them. C is a vertical section on the irregular line *x x*. D is a detail, showing a sectional view of one of the driving-wheels and its gearing. E and F show cross-sections of the two of the cutters and cutter-bar.

G in the drawings denotes the main axle, mounted upon two wheels, *b c* Upon one end of the axle is suspended the bearing-plate or hanger *d*, in which is journaled the shaft *e*. This shaft *e* passes through a sleeve, *r*, and carries at its rear end a bevel-pinion, *s*, which meshes into and is driven by a bevel-gear, *u*, on a counter-shaft, *v*.

At the front end of sleeve *r* is hung the shoe *f*, which has fixed to it and supports one end of the finger-bar *g*, upon which reciprocates the cutter-bar *h*, carrying the cutters *i*, playing between and through the slots in the rear ends of the fingers *k*. The front end of the shoe *f* is hung from the opposite end of the axle G by means of a link, *l*. At the front end of the shaft *e* is a crank-wheel, *m*, from which extends a wrist-pin, *n*, which plays in and reciprocates a box, *o*, sliding in a vertical slot, *p*, in a slot-plate, *q*, projecting up from the end of the cutter-bar.

I am aware that friction-rollers have been used on wrist-pins; but the employment of this box, increasing the bearing-surface, renders the parts more enduring and insures accurate and full reciprocative movements of the cutter-bar.

Stationary disks *w* are mounted and fixed upon the main axle G, and form a part of the carriage, and have journal-bearings for the shaft *v*, each of these disks also forming an inner head to a hub or shell, *x*, of the adjacent wheel, the wheel having an outer plate or disk, *y*, which forms the other head, and a peripheral flange, *z*, the disk *y* and flange *z* forming the hub, the spokes connecting the flange and the rim of the wheel, as seen at C and D, and the two disks and flange forming a box or shell for containing the gearing that drives the shaft *v*, and, through such shaft, the cutting mechanism. Within the shell is a ring, a^2, whose periphery fits and is capable of rotation within the inner surface of the flange, and whose inner surface is an internal gear. Each end of the shaft *v* carries a pinion, b^2, that meshes into the teeth of the gear-ring in the adjacent wheel.

On the outer or peripheral surface of each ring is a series of ratchet-notches, c^2, with any one of which the tooth of a spring-pawl, d^2, may engage, this pawl extending through a slot, e^2, in the hub-flange *z*, as seen at C, so that, as the wheels run forward, the pawls turn the gear-rings with the wheels, while, if the wheels run back, the pawls can slip over the ring without imparting rotative movement thereto. As the gear-rings are rotated by the wheels their teeth drive the pinions b^2 and impart rotation to the shaft v. The bevel-gear u is not fixed upon this shaft, but turns loosely thereupon when not clutched thereto.

On the inner side of the bevel-wheel are clutch-teeth f^2, and on the shaft v is a sliding clutch, g^2, operated by a clutch-lever, h^2, the clutch sliding along the shaft, but turning with it. When the clutch is slid up against the clutch-teeth of the bevel-gear u, the rotation of the shaft v, effected by the gear-rings, drives the bevel-gear, whose rotation drives the bevel-pinion and the crank-shaft. When the sliding clutch is thrown away from the clutch-teeth of the bevel-wheel, the wheels drive the shaft v without imparting rotation to the bevel-wheel and crank-shaft, and, by throwing the pawls
63 d^2 up from the periphery of the gear-ring, the wheels will rotate without imparting movement, except the forward movement of the carriage, to any of the mechanism.

To hold each pawl out of connection with its ring, it is formed with a point, i^2, in rear of its fulcrum, and by pressing up the pawl the spring bears upon this point, throwing it forward and the point of the pawl upward, as seen by dotted lines at C. Either or both wheels may thus be thrown into or out of connection with the gearing mechanism.

By making a hub shell or box, as shown, for containing the gearing, such gearing is shielded from all foreign matter, and saved from much wear and from breakage.

The bevel-gear u might be placed farther out on the shaft v; but, by placing it close to one of the main wheels and incasing it on the disk, it is out of the way, and the machine is rendered very compact.

The cutting apparatus is shown as swinging upon the crank-shaft; but the finger-bar may be hinged to the shoe f, and a pitman-rod or link-connection be made between the crank-shaft and the cutter-bar. Usually each cutter is riveted to the cutter-bar; but, instead of so applying the cutters, I bend the rear part of each, so as to make a socket or recess therein for the reception of the cutter-bar, as seen at E and at k^2, the cutter-bar being made dovetailing in section, and the cutter-plate being bent, so that its recess corresponds to or fits upon the cutter-bar, the cutters being slid upon the end of the bar, or the bar being sprung into those made with a recess, and the last one being secured by a head on the bar to keep them all in place.

By making the cutters with a recess, as above, any one can be removed and replaced independently of the others, and they are self-fastening, and held without rivets. The bevel-wheels are shielded by casing attached to the stationary disks.

The gear-rings may be cast to the flanges or to the spokes of the main wheels, made in the ordinary way, and left partly open; but I prefer the above-described mode.

By adding a platform, rake, and other attachments, it can be changed from a mower to a reaper.

By the use of the hand-lever and chain attached to the bearing-plate or hanger *d* turning on the axle, the cutting apparatus can be raised to any desired height, and, when not in use, can be laid over horizontally, and rest upon the pole.

Having thus described my improved mower or harvester, I claim—

1. In a two-wheel mower or harvester, the combination of the main axle G, the stationary disks w, shaft v, pinions b^2, and gear-rings a^2, substantially as described, and for the purposes set forth.

2. The hubs x, constructed as described, in combination with the gear-rings, as and for the purposes set forth.

3. In combination with the main wheels and gear-rings, the ratchets and pawls, arranged substantially as and for the purposes set forth.

JOHN G. PERRY.

Witnesses:
FRANCIS GOULD.
M. W. FROTHINGHAM.

64 DEFENDANT'S EXHIBIT PERRY'S SECOND PATENT. H. E. T., Ex.

J. G. Perry. Harvester. 104,490. June 21, 1870.

(Here follows diagram marked page 65.)

66 UNITED STATES PATENT OFFICE.

JOHN G. PERRY, of Kingston, Rhode Island.

Improvement in Harvesters.

Specification forming part of Letters Patent No. 104,490, dated June 21, 1870.

To all whom it may concern:

Be it known that I, John G. Perry, of Kingston, in the county of Washington and State of Rhode Island, have invented improvements in reapers and mowers or grass and grain harvesters; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My present invention relates particularly to the construction of that class of mowers and reapers in which the cutter-bar is driven by the rotation either of both or of one of the draft-wheels, without the employment of a counter-shaft crossing from wheel to wheel.

My invention consists, primarily, in the peculiar arrangement or organization of the mechanism that connects the crank-shaft that actuates the cutter-bar with the gear-ring of one of the driving-wheels, a secondary improvement consisting in the mechanism, or arrangement of mechanism, for disconnecting the gear-ring from the cutter mechanism operated thereby.

J. G. Perry,

Mower

No 104,490. Patented. June 21. 1870

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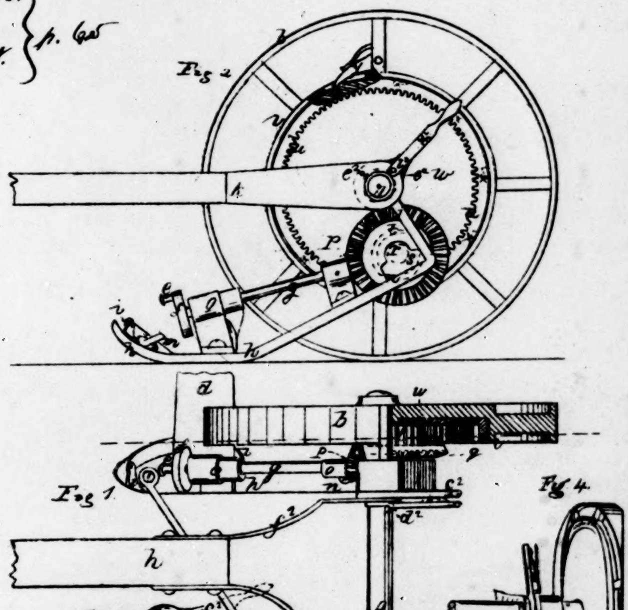

John G. Perry
by his attys.
Crosby, Halsted & Gould

Witnesses
F A Hidden
M. W. Frothingham

The drawing represents such of the parts of a machine embodying the invention as are directly connected with my improvements.

Figure 1 shows these parts in plan, one wheel being shown half in horizontal central section. Fig. 2 is a sectional elevation of the same. Fig. 3 is a sectional view of the gearing, and Fig. 4 a disk and shield covering the same.

A denotes the main axle, mounted upon the two wheels *b c*. *d* denotes the finger-bar, upon which reciprocates the cutter-bar (not shown), said cutter-bar being driven by a crank or wrist pin, *e*, on a crank-wheel, *f*, said pin being connected to the cutter-bar by a pitman or other suitable connection.

The crank-wheel is on the end of a shaft, *g*, to which and a shoe, *h*, the finger-bar is hinged by two ears, *i*, so that it can be swung up and tipped over upon the pole *k*.

The shoe *h* extends back from the finger-bar, and is hung at its rear end to the axle A, as seen in Fig. 2, and at its front end is connected to a sleeve, *l*, on the opposite end of the axle, by a link, *m*, as seen in Fig. 1, the rear part of the shoe forming a bearing plate or frame, *n*, suspended from the axle, for carrying the gearing that connects the cutter-bar shaft *g* with the driving-wheel gearing.

The shaft *g* rotates in suitable bearings *o* on the shoe or hanger-plate *n*, and at the rear end of the shaft is a bevel-pinion, *p*, meshing into and driven by a bevel-wheel, *q*, rotating on or with a short shaft or pin, *r*, stationarily secured or rotating in a bearing, *s*, in the hanger-plate *n*.

On the back side of this bevel-wheel, and preferably formed integral with it, is a spur gear or pinion, *t*, the teeth of which mesh into and are driven by the internal gear-teeth of a gear-ring, *u*, fitting into and revolving in a hub shell or case, *v*, in the wheel, this shell consisting of a web extending radially from the hub to the spokes, and a flange which forms the bearing for the ring, the inner face being covered by a disk, if desirable, thus increasing the gear-ring, and shielding it from entrance of hay, grain, or dirt.

The gear-ring *u* is fixed to a web or disk-wheel, *w*, fixed upon the axle A, and the outer or peripheral surface of the wheel has ratchet-teeth or notches *x*, with which a spring pawl or click, *y*, engages when the machine is moving forward, while at the opposite end of the axle is a ratchet-wheel fixed to the axle, with which engages a spring pawl or click, *z*, so that the rotation of either wheel in a forward direction imparts rotative movement to the gear-ring, the teeth of which drive the pinion *t*, and, through said pinion and the bevel-gearing *p q*, rotates the shaft *g* and reciprocates the cutter-bar.

In "backing," the pawls slip over the ratchet-teeth, and the gear-ring and axle are not rotated.

To disengage the cutter-driving mechanism from the driving-wheels, I hang the bearing-plate *n* to the axle, as follows:

At the top of the arm *j* of the bearing-plate is a ring, a^2, which ring surrounds an eccentric sleeve, b^2, placed upon and turning freely around the axle A. At one end of this sleeve is a handle, c^2, by turning which the sleeve is turned upon the axle, and the ring a^2 is thereby raised or lowered. If the lever be turned to the position

shown in Fig. 2, the pinion t drops into engagement with the
67 gear-ring u; but if the handle be turned to the position shown
in Fig. 3, which denotes a vertical section through a portion
of the gear-ring and the axle A, the eccentric raises the bearing-plate n and the gears supported by it, and carries the pinion out of engagement with the gear-ring, so that, though the gear-ring and the axle turn with both or either of the wheels, no working movement is imparted to the rest of the gearing.

The handle c^2 carries a spring latch-pin, d^2, which, pressing into one of two holes, e^2, locks the gearing in position.

It will thus be seen that the machine is compact, exceedingly simple and effective, and that the mechanism is easy to manipulate and not liable to derangement.

By adding the scythe, seat, and lever, the machine can be used as a mower, and the cutting apparatus raised or lowered at the will of the driver from the driver's seat, and, by any suitable mechanism, the machine can be changed from a mower to a reaper, at pleasure.

Instead of placing the bevel-wheel below the axle, as shown in the drawing, it may be mounted directly upon the axle and be driven from the gear by its pinion t, meshing into an intermediate pinion, which meshes into and is driven directly by gear-ring u; and, instead of arranging the latch-pin d^2 to lock into holes in the pole-brace f^2, as seen in Fig. 1, it may be arranged as seen in Fig. 4, the holes being made on a flange on the ring, at the top of the hanger-arm n, in which case the handle c^2 may be used as the lever by which to raise the finger-bar and cutting mechanism.

Having thus described my improvement in mowers and reapers, I claim—

1. In combination with the gear-ring u, rigidly fixed to the axle, the cutter-driving mechanism, supported upon the bearing or hanger plate, suspended from the axle A, substantially as shown and described.

2. In combination with the elements of the preceding, the eccentric b^2 and lever c^2, for throwing the machine in and out of gear, substantially as set forth.

JOHN G. PERRY.

Witnesses:

ELISHA C. CLARKE.
MILLARD F. PERRY.

69

A. STRAUSS.

Railroad Track Clearer.

No. 110,602. Patented Dec. 27, 1870.

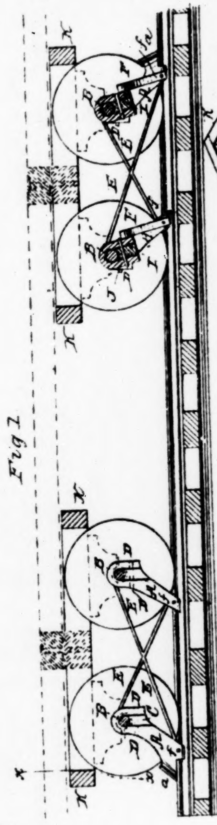

Fig 1

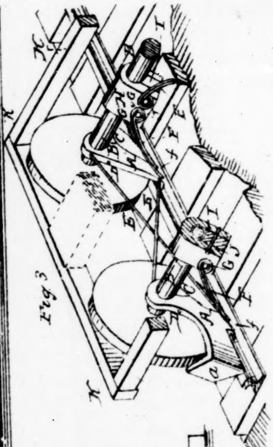

Fig 3

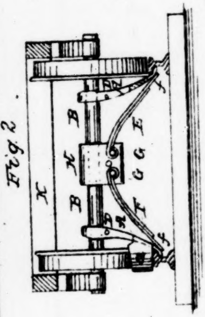

Fig 2

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Witnesses
G. H. Searle
Albt. H. Wolf

Inventor
Arnold Strauss

68 DEFENDANT'S EXHIBIT STRAUSS PATENT. H. E. T., Ex.

A. Strauss. Track-clearer. #110,602. Dec. 27, 1870.

(Here follows diagram marked page 69.)

70 UNITED STATES PATENT OFFICE.

ARNOLD STRAUSS, of New York, N. Y.

Letters Patent No. 110,602, dated December 27, 1870.

Improvement in Safety Attachments for Railway-Trucks.

The schedule referred to in these letters patent and making part of the same.

I, Arnold Strauss, of New York, in the county and State of New York, have invented certain "devices for preventing railroad disasters," of which the following is a specification, reference being had to the drawing hereto annexed.

This invention relates to railroad cars or trucks used upon the common H-shaped rails of railroads or street rails; and

It consists in providing the axles, near the inner sides of the wheels, with hooks or claws pressed by springs working from the middle of the axles toward the rails, and sliding loosely in the recess formed between the tread and the base of the rails. At the two foremost and hindmost wheels of each car or vehicle these hooks are combined with devices (in their appearance similar to plowshares) sliding over the top of the rails in front of the wheels, and shaped in such a manner that all obstacles lying on the rails are pushed or swept off toward the outside of the track.

The object of my invention is to prevent any railroad disaster caused either by obstacles (stones, sticks, &c.) lying upon the track, or by the centrifugal power developed at curves, or any lateral power, which either cause is apt to throw a railroad car, locomotive, &c., off the track. The pushing or sweeping devices will clear the track of the obstacles lying upon it, and the hooks pressed by the springs will catch as much of the tread of the rails in its inner recess that the car is perfectly secured to its track, and cannot be overthrown by any lateral power. The upper parts of the hooks or claws are shaped in such a manner that the pressure against the inner side of the shank of the rail is limited, and the hooks are removed or discharged from their service by an unlocking device hung in a recess at the middle of the axles of the wheels.

In the drawing—

Figure 1 is a longitudinal section of a railroad car, representing its two trucks under a platform indicated in dotted lines.

Figure 2 is a cross-section of a truck taken in the line xx of Fig. 1.

Figure 3 represents a section of a truck given in a perspective view.

Similar letters refer to like parts.

A and A′ are the devices holding the trucks K on the track. They are hung over the axles B, and secured to the latter by the pieces C and the bolts D.

In order to obviate curves in constructing the clamps A A′, said clamps are placed in an incline position verging from the axle to the front and base of the periphery of the wheel, and are held in this position by cross-bars or braces E E.

The parts *a* of the hooks A serve as pushers, scrapers, sweepers, or cow-catchers before the end wheels.

Fig. 2 shows but one of these scrapers in its front view, the other one being cut off in order to show clearly the shape of the hooks.

The axles B are provided with recesses to receive the yokes of the hooks A and A′, the yokes being beveled on their sides in both directions from a central point, as shown in Fig. 2, and bearing against the shoulders of the recesses in such a manner as to limit the pressure of the hooks against the rails, as also to allow them to fail back as soon as this pressure is suspended.

The springs F, when in position, as Fig. 2 represents, have a tendency to press the hooks A and A′, to which they are joined by the bolts *f*, toward the inner sides of the shanks of the rails, below the tread of the same.

They are pivoted by the bolts G to the yoke H, which is hung in a recess in the middle of the axles B, and locked by the piece I and bolt J.

When this bolt J and the piece I are removed the yoke H becomes unlocked and the springs F are deprived of their power, thus enabling the truck to be removed from the track if it should be required.

What I claim as my invention is—

1. The sliding hooks A and A′, hung in recesses of the axles near the inner sides of the wheels, and braced by the crossing-bars E and kept in position by the springs F, substantially as and for the purposes set forth.

2. The scrapers *a*, in combination with the hooks A, as and for the purpose set forth.

3. The springs F, in combination with the yoke H, the piece I, and the bolt J, as and for the purpose described and shown.

ARNOLD STRAUSS.

Witnesses:

G. H. HENLE,
ALB'T H. WOLF.

71 DEFENDANT'S EXHIBIT CLARK PATENT. H. E. T., Ex.

(2–175.)

20446.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted James N. Clark April 17, 1877, number 189,696, for improvement in car-track clearers.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 25th day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

E. M. MARBLE,
Commissioner.

---

72 (2–155.)

No. 189,696.

THE UNITED STATES OF AMERICA.

[Vignette.]

To all to whom these presents shall come:

Whereas James N. Clark, of Cleveland, Ohio, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in car-track clearers, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said James N. Clark, his heirs or assigns, for the term of seventeen years from the seventeenth day of April, one thousand eight hundred and seventy-seven, the exclusive right to make, use, and vend the said invention throughout the United States and the territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this seventeenth day of April, in the year of our Lord one thousand eight hundred and seventy-seven, and of the Independence of the United States of America the one hundred and first.

[Seal Patent Office, United States of America.]

A. BELL,
Acting Secretary of the Interior.

Countersigned:
ELLIS SPEAR,
Commissioner of Patents.

(Here follows diagram marked p. 73.)

74

United States Patent Office.

James N. Clark, of Cleveland, Ohio.

Improvement in Car-Track Clearers.

Specification forming part of Letters Patent No. 189,696, dated April 17, 1877; application filed January 30, 1877.

To all whom it may concern:

Be it known that I, James N. Clark, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and inproved car-track cleaner; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object I have in view is the production of a cleaner to remove snow, sand gravel, or other light obstructions from the tracks of street-railroads, which will be cheap and simple in construction, and durable and efficent in use; and my invention therein consists in the combination, construction, and arrangement of the several parts, all as more fully hereinafter explained.

To enable others skilled in the art to manufacture my device, I proceed to describe the same, having reference to the drawings, in which—

Figure 1 is an end view of a street-car with my track-cleaner attached thereto; Fig. 2, a side elevation, and Fig. 3 a bottom view of the same.

Like letters denote corresponding parts in each figure.

A represents the platform of a street-car, and A′ the vertical dashboard or fender of the same. To the underside of the platform, a short distance back from the front of the car, is situated a steel bar, B. This bar extends nearly the entire width of the car, and is journaled at its ends in hangers *a a′*, pendent from the platform. Two arms, C C′, constructed of steel, extend from the bar B, to which they are secured in any suitable manner diagonally backward, so that their rear ends rest about over the car-track. To the ends of

73

J. N. CLARK.

CAR-TRACK CLEARER.

No. 189,696. Patented April 17, 1877.

Fig. 1.

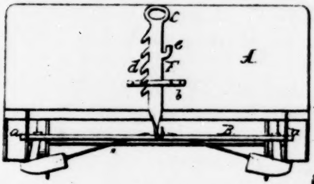
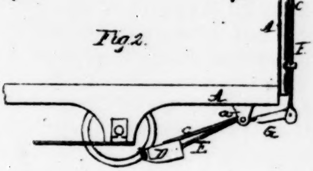
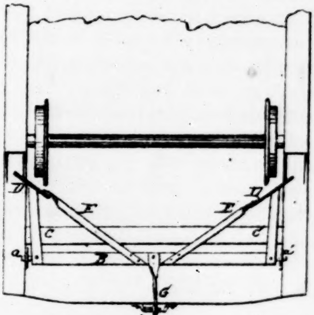


Fig. 2.



No. 290.
Day
v.
F. W. & W.
Ry. Co.
} p. 73

Fig. 3.



WITNESSES
R. F. Dyer
L. W. Seely

INVENTOR
James N. Clark
by Geo. W. Dyer & Co
ATTORNEY.

these arms are attached the scrapers D D′, of substantially the form shown in the drawing. Two other arms or braces, E E′, made of spring-steel, connect the scrapers and the bar B, extending from near the end of such bar to the top of the scrapers. F is a toothed rod, which projects upwardly on the front of the dash-board or fender A′, and passes through a metallic loop, *b*, on the same. This rod has a proper handle, *c*, on its upper end, by which it can be raised or lowered. One side of the rod is constructed with a toothed rack, *d*, the teeth of which project downwardly, and the other side with a single upwardly-turned hook, *e*. The lower end of the rod F′ is pivoted to the outer end of an arm, G, which is connected rigidly with the bar B.

This arm G may be attached to the center of the bar, or to any point of the same, to correspond to the position of the rack-rod, which is designed to be placed either at the center or to one side of the dash-board or fender, as may be found convenient.

When the track-cleaner is not in use the operating rack-rod is pushed downwardly, which raises the scrapers, and the hook *e* is caught under one side of the loop *b*, to hold such scrapers in an elevated position.

For use, the rack-rod is unhooked, and drawn upwardly till the scrapers rest in the required position upon the track, when the rod is hooked in the loop by one of the downwardly-projecting notches *d*, thus keeping the scrapers down upon the track.

By having the arms and braces which support the scrapers constructed of spring steel, made thin to be quite elastic, they will yield to the upward pressure when the scrapers strike any immovable obstruction, and permit such scrapers to ride easily and without injury over the same without disturbing the position of the rack-rod.

From the simplicity of construction of my track-cleaner it can be built quite cheaply, and is very durable, as well as efficient in use.

Having thus fully described my invention and explained some of its advantages, what I claim as new therein, and desire to secure by letters patent, is—

In a track-cleaner, the combination of the pivoted bar B and spring arms and braces C C′ E E′ with the arm G and the rack-rod F, all constructed and arranged substantially as described and shown.

This specification signed and witnessed this 6th day of January, 1877.

JAMES N. CLARK.

Witnesses:

ECH. T. TRACY.
H. McQ. HARDING.

[Seal Patent Office, United States of America.]

75 DEFENDANT'S EXHIBIT DAY ORIGINAL PATENT OF 1872. H. E. T., Ex.

(2-175.)

20446.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the letters patent granted Augustus Day April 9, 1872, number 125,547, for improvement in railway-track cleaners.

In testimony whereof I, E. M. Marble, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 25th day of October, in the year of our Lord one thousand eight hundred and eighty-three, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

E. M. MARBLE,
Commissioner.

76 (2-155.)

No. 125,547.

THE UNITED STATES OF AMERICA.

[Vignette.]

To all to whom these presents shall come:

Whereas Augustus Day, of Detroit, Michigan, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in railway-track cleaners, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said Augustus Day, his heirs or assigns, for the term of seventeen years from the ninth day of April, one thousand eight hundred and seventy-two, the exclusive right to make, use, and vend the said invention through the United States and the territories thereof.

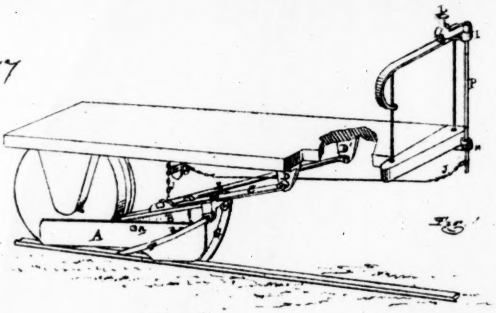
In testimony whereof I have hereunto set my hand and caused

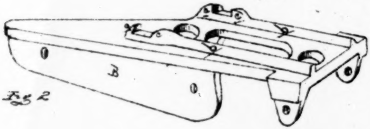
AUGUSTUS DAY.

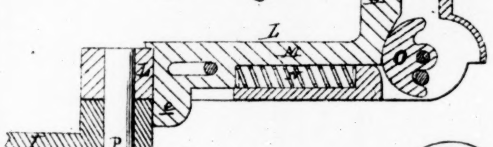
Improvement in Railway Track Cleaners.

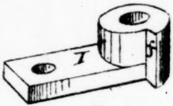
No. 125,547. Patented April 9. 1872.

No. 290.
Day
v.
F.W. & W.
Ry. Co.
} p. 77









ATTEST:

H. F. Eberts
H. S. Sprague

INVENTOR:

Augustus Day
per attorney
Thos. S. Sprague

the seal of the Patent Office to be affixed, at the city of Washington, this ninth day of April, in the year of our Lord one thousand eight hundred and seventy-two, and of the Independence of the United States of America the ninety-sixth.

[Seal Patent Office, United States of America.]

B. R. COWEN,
Acting Secretary of the Interior.

Countersigned:
SAM'L A. DUNCAN,
Acting Commissioner of Patents.

(Here follows diagram marked p. 77.)

78 UNITED STATES PATENT OFFICE.

AUGUSTUS DAY, of Detroit, Michigan.

Improvement in Railway Track-Cleaners.

Specification forming part of Letters Patent No. 125,547, dated April 9, 1872.

To whom it may concern:

Be it known that I, Augustus Day, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful improvement in railway track-cleaners; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of the front part of a horse-car fitted with my improved track-cleaner device, showing the scraper lowered to the rail. Fig. 2 is an enlarged perspective view of the casting to which the scraper is secured. Fig. 3 is an enlarged vertical longitudinal section of the handle and the bracket of its shaft, and Fig. 4 is a perspective view of the said bracket.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of this invention relates to an improvement in the construction of railway track-cleaning devices and the means of operating them, being more especially designed to be attached to horse-cars for the purpose of removing snow, ice, mud, and other obstructions from the rails and immediately at the sides thereof; and it consists, first, in the peculiar construction and arrangement of a cast shank with relation to the scraper, which is secured thereto, and the draft-irons, which connect it to the under side of the car; second, in the pendent guards, which lift the scraper from the track on meeting with an obstruction on the outer side of the rail and deflect outwardly from the track; third, in a peculiar crank for operating the shaft, which raises and lowers the pair of scrapers at each end of the car, and in the arrangement of the various parts, as more fully hereinafter set forth.

In the drawing, A represents my scraper, being a plate of sheet metal of the form shown, slightly curved in cross-section. B is the shank, to which it is secured by the bolts *a a*. This shank is a casting in the form shown in Fig. 2. It is formed with a pair of longitudinal ribs, *b*, on top to receive the end of the draw-bar C, whose other end is pivoted to a hanger, D, pendent from the car; or it may be pivoted directly to the sill of the car. The shank is also fitted or cast with diagonal studs *c* on top of said ribs *b* to receive the outer end of a diagonal brace, E, whose other end is pivoted to a hanger, D′, paralled with the hanger D, but near the longitudinal center of the car. While the scraper and the parts to which it is attached are free to move in a vertical plane, this brace E effectually resists any lateral pressure to which the scraper may be subjected in moving obstructions from the rail, its own weight being sufficient to keep it down on the rail. The draw-bar and brace are securely bolted to the shank, and by the described arrangement of the ribs and studs perfect accuracy in the "set" of the scraper is secured, an essential feature of my invention. F is a guard-rod secured to the front end of the shank on the outer edge, sweeping downward and backward nearly to the edge of the scraper, so that, on meeting with an inequality in the pavement outside the track, it will lift up the scraper and drop it after passing by. G is a scraper, pendent from the inner front end of the shank, terminating just inside of the rail in advance of the front end of the scraper, which lies athwart the rail. The lower end of this guard is curved slightly so as to clean the inner face of the rail and deflect the obstructing matter inwardly, as well as serving to lift the scraper over an obstruction which the scraper might not be able to remove. Although auxiliary to the scraper in the manner described, yet they are not essential to its operation as a scraper.

The means employed for lifting the scraper from the track, or rather the pair of them, as there is one at each side of the car, is a vertical shaft, P, journaled through brackets H I projecting, respectively, from the front sill of the platform and the guard-rail. A chain, J, secured to the lower end of the shaft, passes over a pulley, K, under the car, and, attached to the shank when wound about the shaft, raises the scrapers at each side of the car clear from the rails, being secured in the raised position by the means hereinafter described.

L is the crank, keyed to the top of the shaft to rotate it. The crank is cast with a longitudinal recess, with a slot in the inner end. In this recess a bar, M, is laid, having an upward-projecting thumb-piece, *d*, at the outer end and a downward-projecting latch, *e*, at the inner end, which protrudes through the slot in the
79 crank, whose handle is recessed to receive the thumb-piece *d*.
A pin, passing through the crank and a slot in the bar, keeps the latter in place, while permitting it to move longitudinally. A coiled spring, N, placed in the bottom of the recess in the crank and abutting against a shoulder in the bar, presses the latter toward the eye of the crank. The upper bracket, I, has formed on one side a cam-notch, *f*, with which the latch of the bar M engages, when swept around past it, to hold the scrapers up from the rails, a single

turn of the shaft being sufficient to raise them as far as necessary. To drop them again the driver draws the thumb-piece toward the handle of the crank and releases the latter, when the weight of the scrapers causes them to drop.

To prevent the accidental dropping of the scrapers by passengers handling the crank, the lower outer corner of the latter is formed with a recess, in which is pivoted an anchor-shaped tumbler, O, which, when thrown over to engage with or rest upon a pin, *g*, across the recess, prevents the latch-bar from being drawn back, so that is necessary to first throw this tumbler around forward on its pivot before the latch can be released, being entirely inclosed within the crank. The existence and office of this tumbler would not likely be discovered by a casual observer.

Unless turned around at the completion of a trip, the car should be provided with a pair of scrapers and operating devices at each end.

What I claim as my invention, and desire to secure by letters patent, is—

1. The construction and arrangement of the shank B, as described, with relation to the scraper A, draw-bar C, and diagonal brace E, as and for the purpose set forth.

2. The combination, with the draw-bar C and scraper A, of the diagonal brace E, as and for the purpose set forth.

3. The guard F, as and for the purpose set forth.

4. The chain J, pulley K, and cranked shaft P for raising and lowering the scrapers, substantially as described.

5. The recessed and slotted crank L, bar M, thumb-piece *d*, latch *e*, and spring N, in combination with the cam-notch *f* of the bracket I, as and for the purpose set forth.

6. The construction and arrangement of the tumbler O with relation to the crank L and its latch-bar M for locking the latter, substantially as described.

AUGUSTUS DAY.

Witnesses:
H. F. EBERTS.
HARRY S. SPRAGUE.

[Seal Patent Office, United States of America.]

80 DEFENDANT'S EXHIBIT SHERIDAN'S LICENSE TO GEO. F. TRACY & CO. H. E. T., Ex.

(2–175.)

7980.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an instrument of writing executed by James Sheridan February 18, 1878, and recorded in Liber Q 22, page 164. Said record has been carefully compared with the original and is a correct transcript thereof.

In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 28th day of April, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

BENJ. BUTTERWORTH,
Commissioner.

I hereby certify that this exhibit was produced on the final hearing in the circuit court.

Attest:

[SEAL.] E. E. MARVIN, *Clerk.*

81 *Agreement.*

Liber Q 22, p. 164.

This agreement, made at St. Louis, Missouri, this 18th day of February, A. D. 1878, by and between James Sheridan, of the first part, and Geo. C. Tracy & Co., of the second part, witnesseth:

That the said James Sheridan, of the first part, hereby authorizes the said Geo. C. Tracy & Co. to act as sole agents in and for the United States, upon the conditions herein set forth, for his patents upon track-cleaners, numbered 35066 and 42411 and bearing date April 22, 1862, and April 19, 1864, respectively; the said second parties to have exclusive control of the sale and management of said patents or any valid reissues thereof, subject, however, at all times to the inspection and examination of the said James Sheridan as he may demand.

And that the said Geo. C. Tracy & Co. have agreed to and with the said James Sheridan that they will undertake the introduction of the said patents, using such part or parts as may be considered essential to the best interests of the sale of such devices, and 82 endeavoring in any way which may be deemed best to effect the introduction and sale of the same, and that they will use all reasonable diligence and effort to so work the aforementioned patents as shall promise the most satisfactory results and appear most to the pecuniary interest of the parties concerned.

And the said Geo. C. Tracy & Co. furthermore agree to make monthly, semi-annual, or annual statements, properly attested, to the said James Sheridan of all sales that may or shall be made, and to pay to the said James Sheridan a royalty of $0.50, fifty cents, on each track-cleaner sold by them.

And the said James Sheridan hereby agrees that so long as the said Geo. C. Tracy & Co. maintain and keep the agreements herein contained he will not give, grant, sell, or in any way dispose of any

part or parts or any divided or undivided interest in the said patents or any valid reissues thereof or act in any way to take unfair or prejudicial advantage of the labor and expense incurred by
83 the said Geo. C. Tracy & Co. in performing their part of this contract, but — the said Geo. C. Tracy & Co., fail to keep and maintain their part of these agreements, then this contract to be void; otherwise to remain in full force and power.

In witness whereof the said parties have hereunto (and to a true copy thereof) set their hands and seals the day and date above written.

JAMES SHERIDAN. [SEAL.]

Witness-:
MICHAEL ROHAN.
J. F. W. SCHRADER.

GEO. C. TRACY & CO. [SEAL.]

Witness-:
H. H. NEWTON.
OSCAR BALZER.

Recorded Feb. 25, 1878. Ex'd: G. W., M. McK.

[Endorsed:] 7980. D., '84.

84 DEFENDANT'S EXHIBIT OTIS LICENSE TO TRACY. H. E. T., Ex.

(2–175.)

7980.

DEPARTMENT OF THE INTERIOR.

[Vignette.]

UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of an instrument of writing executed by Samuel A. Otis November 23, 1878, and recorded in Liber H 23, page 392.

Said record has been carefully compared with the original and is a correct transcript thereof.

In testimony whereof I, Benj. Butterworth, Commissioner of Patents, have caused the seal of the Patent Office to be affixed this 28th day of April, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

[Seal Patent Office, United States of America.]

BENJ. BUTTERWORTH,
Commissioner.

I certify that this exhibit was produced on the final hearing in the circuit court.

Attest:

[SEAL.] E. E. MARVIN, *Clerk.*

85 Liber N 23, p. 392.

This agreement, made this 23d day of November, A. D. 1878, by and between Samuel A. Otis, of Boston, Commonwealth of Massachusetts, party of the first part, and George C. Tracy, of Cleveland, State of Ohio, party of the second part, witnesseth:

That whereas said Otis is the inventor of certain improvements in railway-track cleaners or scrapers, upon which he has secured letters patent of the United States, numbered 78537 and bearing date June 2d, 1868:

Now, therefore, the said Otis, in consideration of the agreements of the said Tracy hereinafter set forth, does hereby grant unto said party of the *of the* second part exclusive right and license to manufacture and sell the said scraper or such part or parts as may be thought best by the said party of the second part within the United States and territories for the term of one year from the date hereof and without any interference from the party of the first part or any person or persons acting by, through,
86 or under him; and the said Otis further agrees that if said Tracy keeps and maintains his part of this agreement that he shall have the privilege of extending this license for a further period of one year from the date of its expiration; that he, said Otis, will not give, grant, transfer, or set over unto any other party or parties any divided or undivided interest in said patent during the term of this agreement or any extension thereof without first giving to said Tracy the right to purchase such interest at such sum as said party of the first part shall have *bona fide* offered to him or for such sum as the parties hereto may mutually agree upon.

The said Tracy, in consideration of the agreements of said Otis, hereby agrees to manufacture and sell said invention or such part or parts as he may think best and to introduce such scraper to the trade and to use all reasonable diligence to effect sales of said improvements as rapidly as possible; that he, said Tracy, will
87 pay to said Otis or his legal representatives one dollar and fifty cents ($1.50) on each and every cleaner or scraper made and sold by him and containing any part or parts of said invention upon which said Otis did obtain said patent as a royalty to said Otis.

That he, said Tracy, will keep proper books of account of sales of scrapers or cleaners as aforesaid, which books shall at all times be open to the inspection and examination of said Otis; that he, said Tracy, will make each month a true statement of all sales made by him as aforesaid and from the date of this contract commencing and send the same, together with the amount found due, according to the terms of this agreement, to said Otis.

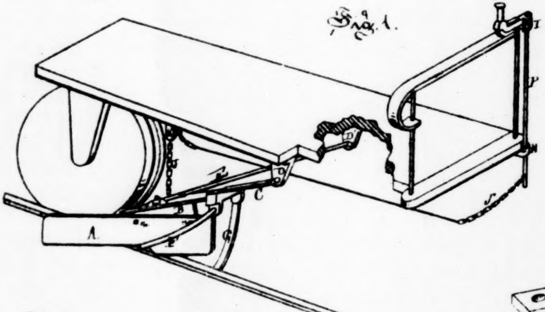
If the said Tracy fails to maintain and keep his part of this agree-

A. DAY.
Track-Clearer. 90

No. 8,388. **Reissued Aug. 27, 1878.**

No. 290.
Day
F.H.&C.W.
Ry Co.
} k. 90

Fig. 1.



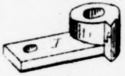


Fig. 4

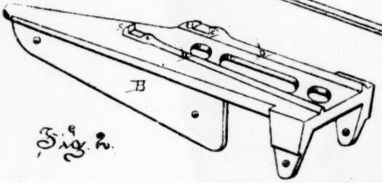


Fig. 2.

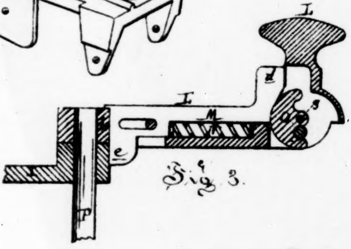


Fig. 3.

Attest:
H. L. Aulls
Charles J. Hunt

Inventor:
Augustus Day
By Atty
Thos S. Sprague

ment, then the same shall become null and void at the election of said Otis.

Witness our hands and seals the day and year first written.

88 SAMUEL A. OTIS.
GEO. C. TRACY.

Witness-:
C. B. SOUTHARD.
FENDER A. PEIRCE.
H. M. L. HARDING.
OSCAR BALZER.

Recorded Dec. 24, 1878. Ex'd: G. W., M. McK.

[Endorsed:] 7980. D., '84.

89 [Endorsed:] The circuit court of the United States for the district of Connecticut. In equity. Augustus Day *vs.* Fair Haven & Westville railroad. Day's reissued patent No. 8388, dated Aug. 27, 1878. Complainant's Exhibit B.

I certify that this exhibit was produced upon the trial in the U. S. circuit court.

[Seal of Circuit Court, Connecticut.]

Attest: E. E. MARVIN, *Clerk.*

SPRAGUE & HUNT,
Comp't's Solr's and of Counsel.

(Here follows diagram marked p. 90.)

91 B.

UNITED STATES PATENT OFFICE.

AUGUSTUS DAY, of Detroit, Michigan.

Improvement in Track-Clearers.

Specification forming part of Letters Patent No. 125,547, dated April 9, 1872; Reissue No. 8388, dated August 27, 1878; application filed March 4, 1878.

To all whom it may concern:

Be it known that I, Augustus Day, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful improvement in railway-track cleaners; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, being a part of this specification, in which—

Figure 1 is a perspective view of the front part of a horse-car fitted with my improved track-cleaning device, showing the scraper lowered to the rail. Fig. 2 is an enlarged perspective view of the casting to which the scraper is secured. Fig. 3 is an enlarged vertical longitudinal section of the handle and the bracket of its shaft, and Fig. 4 is a perspective view of the said bracket.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of this invention relates to an improvement in the construction of railway-track-cleaning devices and the means of operating them, being more especially designed to be attached to horse-cars for the purpose of removing snow, ice, mud, and other obstructions from the rails and immediately at the sides thereof; and it consists in the combination of a pair of independently-acting scrapers, pivotally secured to the floor of a car, and resting upon the track, when in operation, wholly by their own weight, with means for raising and lowering such scrapers simultaneously; in the combination, with an independently-acting scraper resting, when in operation, wholly by its own weight upon the track, of a draw-bar in the direct line of draft and a supplementary and diagonal draw-bar, which at the same time acts as a brace, the forward ends of both of said draw-bars being secured on the same axial line; in the peculiar construction and arrangement of a cast-shank with relation to the scraper, which is secured thereto, and the draft-irons, which connect it to the under side of the car; in the pendent guards, which lift the scraper from the track on meeting with an obstruction on the outside of the rail, and deflect outwardly from the track, and in a peculiar crank for operating the shaft which raises and lowers the pair of scrapers at each end of the car, as more fully hereinafter set forth.

In the drawing, A represents my scraper, being a plate of sheet metal of the form shown, slightly curved in cross-section. The front end of this scraper is rounded off at its lower edge, as shown in the drawings, to allow it to pass, without jar or danger of breaking, over the ends of rails that may be projected above the plane of the adjacent rails. The lower edge of the rear part of the wing of the scraper is cut away, as shown, to allow it to pass over pavement or earth at the side of the track which projects above the rail, thereby preventing such projecting matter from lifting the scraper proper from the face of the rail. B is the shank, to which it is secured by the bolts *a a*. This shank is a casting in the form shown in Fig. 2. It is formed with a pair of longitudinal ribs, *b*, on top, to receive the end of the draw-bar C, whose other end is pivoted to a hanger, D, pendent from the car; or it may be pivoted directly to the sill of the car.

The shank is also fitted or cast with diagonal studs *c* on top of said ribs *b* to receive the outer end of a diagonal brace, E, whose other end is pivoted to a hanger, D′, parallel with the hanger D, but near the longitudinal center of the car, both draw-bar and diagonal brace being thus pivoted on the same axial line, so that when it is desired to raise and lower the scrapers the same will be done without disturbing the vertical position thereof with relation to the track, as would be done were there but one pivotal point. While the scraper and the parts to which it is attached are free to move in a vertical plane, this brace E effectually resists any lateral pressure to which the scraper may be subjected in moving obstructions from the rail, its own weight being sufficient to keep it down on the rail

The draw-bar and brace are securely bolted to the shank, and by the described arrangement of the ribs and studs perfect accuracy in the "set" of the scraper is secured—an essential feature of my invention.

F is a guard-rod, secured to the front end of the shank on the
outer edge, sweeping downward and backward nearly to the
92 edge of the scraper, so that, on meeting with an inequality in
the pavement outside the track of so high a character that
the cut-away wing of the scrapers will not pass over, it will lift up the scraper and drop it after passing by.

G is a guard pendent from the inner front end of the shank, terminating just inside of the rail in advance of the front end of the scraper which lies athwart the rail. The lower end of this guard is curved slightly, so as to clean the inner face of the rail and deflect the obstructing matter inwardly, as well as serving to lift the scraper over an obstruction which the scraper might not be able to remove.

Although auxiliary to the scraper in the manner described, yet the guard-rod and guard F G are not essential to its operation as a scraper.

The means employed for lifting the scraper from the track, or rather the pair of them, as there is one at each side of the car, is a vertical shaft, P, journaled through brackets H I, projecting, respectively, from the front side of the platform and guard-rail.

A chain, J, secured to the lower end of the shaft passes over a pulley, K, under the car, and is attached to the shank when wound about the shaft, raises the scrapers at each side of the car clear from the rails, being secured in the raised position by the means hereinafter described.

L is the crank, keyed to the top of the shaft to rotate it. The crank is cast with a longitudinal recess with a slot in the inner end. In this recess a bar, M, is laid, having an upward-projecting thumb-piece, *d*, at the outer end and a downward-projecting latch, *e*, at the inner end, which protrudes through the slot in the crank, whose handle is recessed to receive the thumb-piece *d*.

A pin passing through the crank and slot in the bar keeps the latter in place while permitting it to move longitudinally.

A coiled spring, N, placed in the bottom of the recess in the crank and abutting against a shoulder in the bar, presses the latter toward the eye of the crank.

The upper bracket, I, has formed on one side a cam-notch, *f*, with which the latch of the bar M engages when swept around past it to hold the scrapers up from the rails, a single turn of the shaft being sufficient to raise them as far as necessary. To drop them again the driver draws the thumb-piece toward the handle of the crank and releases the latter, when the weight of the scrapers causes them to drop.

To prevent the accidental dropping of the scrapers by passengers handling the crank the lower outer corner of the latter is formed with a recess, in which is pivoted an anchor-shaped tumbler, O, which, when thrown over to engage with or rest upon a pin, *g*, across the recess, prevents the latch-bar from being drawn back, so that it is necessary to first throw this tumbler around forward on its pivot before the latch can be released, being entirely inclosed within the crank. The existence and office of this tumbler would not likely be discovered by a casual observer.

Unless turned around at the completion of the trip the car should be provided with a pair of scrapers and operating devices at each end. Each side of the car should be provided with the scrapers, each, however, being independent of the other, except when raised by the mechanism for accomplishing that object, which acts simultaneously on the scrapers on each side.

What I claim as my invention is—

1. In a railway-car, a pair of independently-acting scrapers, pivotally secured to the floor of the same, and resting upon the track, when in operation, wholly by their own weight, in combination with means for raising and lowering such scrapers simultaneously, substantially as and for the purpose set forth.

2. In a track-cleaning-device, the combination, with an independently-acting scraper, resting, when in operation, wholly by its own weight upon the track, of a draw-bar in the direct line of draft, and a supplementary and diagonal draw-bar, which at the same time acts as a brace, the forward ends of both of said draw-bars being secured on the same axial line, substantially as and for the purpose set forth.

3. The construction and arrangement of the shank B, as described, with relation to scraper A, draw-bar C, and diagonal brace E, as and for the purposes set forth.

4. The combination, with the draw-bar C and scraper A, of the diagonal brace E, as and for the purpose set forth.

5. The combination, with the track-cleaning scraper A, of the guard F, as and for the purpose set forth.

6. In combination with the track-scraper A, the pendent-scraper G, substantially as and for the purposes set forth.

7. The combination, with the pivoted track-cleaning scrapers, of chain J, pulley K, and cranked shaft P, for raising and lowering the scrapers, substantially as described.

8. The recessed and slotted crank L, bar M, thumb-piece *d*, latch *e*, and spring N, in combination with the cam-notch *f* of the bracket I, as and for the purpose set forth.

9. The construction and arrangement of the tumbler O with relation to the crank L and its latch-bar M, for locking the latter, substantially as described.

AUGUSTUS DAY.

Witnesses:
CHAS. J. HUNT.
H. S. SPRAGUE.

Endorsed on cover: Sup. Court. U. S. Oct. term, 1886. Augustus Day *vs.* Fair Haven & Westville Railway Co. No. 290. Exhibits received & tied up with record April 27, 1886.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1888.

No. 290.

AUGUSTUS DAY,
Appellant,
vs.
THE FAIR HAVEN & WESTVILLE RAILWAY COMPANY,
Appellee.

BRIEF FOR APPELLANT.

May it please your Honors:

This suit was brought in the Circuit Court of the United States for the District of Connecticut, by the appellant, who was complainant below, for the infringement of letters patent granted him for an improvement in Railway Track Cleaners, dated April 9, 1872, No 125,547; and reissued to him as an Improvement in Track Cleaerrs, No. 8,388, dated August 27, 1878, and for another patent which was afterwards dropped out by stipulation.

The railway track clearer or cleaner is a device attached to a car to clear off any obstruction that may be on the track. Those used on the front of a locomotive are called cow-catchers When the device is separate from the locomotive it is termed a snow-plow, and is used to remove the snow from the track. The street-car track is cleared from a heavy fall of snow by laborers with shovels, or by snow plows drawn by horses. The light falls of snow, mud, ice, &c., are removed from the track by track clearers or cleaners which are attached to the car. These rest on the rail and readily remove all slight impediments. The necessity for these track clearers is shown every winter in our cities and villages where the street-cars are run, and they were produced in some form soon after the street car was put on the track, and each was in its turn patented and tried and in most cases condemned.

The bill of complaint filed in this case (page 2 of Record) avers that the complainant was the first and original inventor of a new and useful improvement in Railway Track Cleaners, and that he obtained a patent therefor, dated the 9th day of April, 1872, No. 125,547.

That the complainant surrendered the said letters patent and obtained a reissue therefor as an improvement in track clearers, dated the 27th day of August, 1878, No. 8,388.

That the complainant was the first and original inventor of certain new and useful improvements in track cleaners, and that he obtained a patent therefor, dated May 8th, 1877, No. 190,563.

That being such patentee and owner the complainant filed his Bill of Complaint in the Circuit Court of the United States for the Eastern District of Michigan, against the Detroit City Railway Company, for infringing said letters patent, and that said defendent filed its answer; that the parties took their proofs and such proceedings were had that the said complainant obtained a decree against the said defendants for an injunction and an accounting.

That the complainant is now the sole and exclusive owner of the said patents.

That the complainant has spent large sums of money to place the same on the market, and has derived great gains and profits therefrom, and would have obtained greater if it had not been for the unlawful acts of the defendants.

That the said defendant has, since the 8th day of May, 1877, and the 7th day of August, 1878, made and used large numbers of track clearers containing the improvements as secured to the complainant, to the damage of complainant in the sum of five thousand dollars, and that defendant refuses to pay over any part of its gains and profits, or to desist from such unlawful use.

That the said defendant uses the improvement claimed in the two aforesaid patents in one device.

That such proceedings are contrary to equity, etc.

That defendant may answer, etc. (answer under oath being waived).

That defendant may account, &c.

Prays for writ of subpœna, &c.

That complainant may have such other relief, &c.

Prays for writ of injunction, &c.

To which the defendant answered :

Admits that letters patent, No. 125,547 was issued and reissued No. 8,388 to complainant.

Denies that complainant was the first or original inventor of any patentable improvement in said letters patent.

Denies that there was any invention in said improvements at the time they were patented, and avers that the same was the result of mechanical skill, etc.

Denies that there was any utility in said invention.

Avers that each of the combinations claimed are not legal combinations, but only aggregations, &c.

Avers that the reissue is not for the same invention as that claimed in the original, &c.

Avers that the original was not defective, &c., or inoperative, and that the claims in the reissue, No. 8,388, are not for the same invention as the original, &c.

Avers that the original, and reissue No. 8,388, were void because the device was on public sale for more than two years, &c.

Avers that Day was not the original inventor, because the said invention had been patented in various patents, which are named.

Avers that Day was not the first inventor, but that the device was known to various persons.

The respondent admits that letters patent No. 190,563, dated May 5, 1878, was issued to said Augustus Day.

Denies the validity of patent No. 190.563; denies Day was the first inventor; denies utility; denies patentability.

Avers that in the state of the art said invention was not patentable, &c.

Avers that the same was known and patented before, &c.

Avers that patent No. 190,563 is null and void, because the device was known to others prior to Day's invention, &c.

Avers that it does not contain a lawful combination.

Avers public use, &c.

Avers the patent No. 125,544 and reissue No 8,388, and No. 190,563, were surreptitiously obtained, &c.

Avers that the complainant cannot recover damages because he has not marked the article sold patented, with the day and year, &c.

Avers that Day was not the original inventor, but that the invention contained in the said two patents were communicated to him by others.

Avers that the devices used by defendant were covered by certain patents which it was licensed to use, &c.

Denies that there had been any *bona fide* adjudication wherein it was decided that reissue No. 8,388 was valid, &c.

Denies that defendant has infringed said reissue No. 8,388, or that of No. 190,563; denies complainant's right to an accounting, &c.

To this the complainant filed the general replication.

Afterwards, the answer was amended by stipulation to insert the names of certain patents.

Afterward it was stipulated (page 19 of record) that the complainant seeks to make no recovery under his patent No. 190,563, dated May 8, 1877, and the complainant does not seek to recover except under the 4th claim of reissued patent No. 8,388, and this stipulation shall have the same effect as though complainant amended his bill in these particulars.

Thereupon the parties proceeded to take their proofs, and a hearing was had on the 30th day of December, A. D. 1884, and on the 16th day of March, A. D. 1885;

The opinion of the Court was filed (page 52 of record), and on the 23d of March a decree was entered in said cause (page 52 of record) dismissing the bill.

That afterwards the said complainant presented a petition to the said Circuit Court for the District of Connecticut, that an appeal to the Supreme Court of the United States should be allowed from said decree, which appeal was duly allowed; the appeal bond approved, and a citation issued and returned served on the 9th day of April, 1886 (page 1 of record).

May it please your Honors:

The appellant now assigns for reasons of appeal or as an assignment of errors:

That in the decision and decree of the said Circuit Court of the United States for the District of Connecticut in said cause, the said Circuit Court erred as follows:

1. That the Court erred in its decision (page 51 of record) in deciding that "the track clearers of the defendant have a scraper and a draw-bar in the line of the draft, and a diagonal brace, the two bars being pivoted to the car in the same axial line, but the methods by which they are fastened to the car are not the methods of the patent.

2. That the Court erred in its decision (page 51 of record) that "the defendant's scraper is pressed upon the track by an elastic steel arm"

3. That the Court erred in its decision (page 51 of record) in deciding that "the fourth claim is for a scraper and a draw-bar in the line of the

draft, irrespective of the method of pivoting scraper and draw-bar together, or the method of raising and lowering either, and a diagonal brace, irrespective of the method by which it is fastened to the draw-bar or to the car, except that the bar and the brace must be pivoted in the same axial line. The scraper and the draw-bar were both old. The only part of the combination which is claimed to be new is the diagonal brace to enable the scraper to be kept in its place on the track."

4. That the Court erred in its decision (page 52 of record) in deciding that "I cannot perceive that the mechanism which is included in the fourth claim was an invention."

5. That the Court erred in its final decree, entered in said cause on the 23d day of March, A. D. 1885, ordering, adjudging and decreeing that:

First. The reissued letters patent on which this suit is brought are invalid as to the fourth clause of claim therein, for lack of patentable novelty in the thing described and claimed therein as an invention.

6th. That the Court erred in its said final decree, in ordering:

Second. The Bill of Complaint in this cause is dismissed with costs to the defendant, to be taxed.

The questions arising in this case are:

1. The validity of the fourth claim of the reissued letters patent No, 8,388?
2. If the fourth claim is valid does the defendant infringe?

The first question may be subdivided into the question of anticipation by the prior patents introduced in evidence by the defendant ; and the question of want of invention in view of the state of the art at the time the patent was issued.

Before considering the questions raised in this case, it is necessary to trace the state of the art of clearing the track of a railway car of obstructions.

In the latter part of the last and in the earlier part of this century tramways, consisting of flat stones laid for the wheels, with a track for a horse between, had been constructed for the conveyance of heavy goods, short distances. In mines, a track of two iron rails on a substructure of wood was laid to the bottom of the shaft. A car drawn by a mule or horse conveyed the coal or ore over this track to the shaft. In 1825 the first railway was opened to traffic in England, and the profitable use of railways dates from that time.

In 1830 the Baltimore and Ohio railroad was begun, and laid as far as Endicott's Mills, On this section of the road the cars were drawn by horses. The Harlem railroad in the City of New York was commenced about the same time and all the cars, both passenger and freight, were drawn by horses from the City Hall to 26th street, a distance of three miles. When street cars were put on the lower portion of this road it was called the Fourth Avenue Road. From that time the use of these horse railroads was established, and in 1872, at the time of the issue of complainant's patent, their use had become so common that they might be designated as one of the institutions of the country.

During all this time, and in numberless places, the problem of how to clear the track and keep it clear of obstructions, was before the engineers who constructed, the men who operated, and the passengers who rode on these roads.

Numerous devices were patented for this purpose—two in 1839 and three in 1840. From time to time inventors came forward with their devices for clearing the tracks of railways from 1835 to 1872, when the appellant in this cause made and patented his invention.

This was the first which fulfilled all the requisite conditions, and is the foundation of all subsequent successful devices since put in operation. It is now in general use in almost every city of the country.

Several of these prior patents are cited in the answer as anticipating the complainant's invention.

As a preliminary to the examination of the questions involved in this case, it is necessary to determine what is claimed in the fourth claim of the patent, or what was the invention covered by this claim. That is, what the law will allow the patentee to claim as his invention.

In the case entitled *Cawood Patent* (94, U. S. 695), Mr. Justice Strong delivered the opinion of the Court. After quoting the greater part of the specification, he continues: "The mode of use is then described. The rail and the piece of iron to be welded on having been heated, the former is swung from the fire into the space between the blocks, when by half a turn of the cams the blocks are closed upon it. The welding piece is then laid on top of the rail and leveled up by a swedge held by the smith, of the form of that section which projects above the blocks. Such is the description. It is succeeded by the claim as follows:

"I do not claim the anvil block nor its recesses, but what I do claim as my invention and desire to secure by letters patent, is the moveable press block having its edge formed to the sides of the rail in combination with another block with its edge of a similar but reversed form (the moveable block to be operated by two cams or in any other convenient manner) for the purpose of pressing between them a T or otherwise shaped rail, thereby greatly facilitating the difficult operation of welding and renewing the ends of such rails after they have been damaged in the manner herein described and set forth."

"What then, in view of this specification and claim, was this invention patented? In Turrill vs. R. R. Co. (1 Wall. 491) this Court declared it to be "Such a moveable press-block as is described; having its edge formed to the side of the rail in combination with such other block as is described with its edge of similar but reversed form, arranged as described, and combined and operating in the particular way described for the special purpose of effecting the desired result." This was enough for that case as it then appeared. But the present case requires a more minute analysis. Viewing the claim as interpreted by the preceding description to which it refers and by the drawing, it is not difficult to discover what the patentee supposed he had invented. It was not *any* kind of moveable press-block, combined and operating in any way with any kind of fixed block to effect any useful result. His avowed purpose was to form a mechanism for welding up and re-forming the ends of exfoliated and crushed rails, or rather to hold them in a convenient position for such welding and re-forming, at the same time preserving their shape. His manner of accomplishing this result was evidently considered by him as of the very essence of his invention. On one side of the rail, when on the anvil, it is to be supported by a fixed block, part of the anvil itself, shaped reversely so as to fit the shape of the rail, and on the other it is to be supported and held in place by a moveable block, with the face adjusted to the shape of the rail on that side; the moveable block capable of advance towards the fixed block, and of retrogradation after the rail is placed on the anvil. *The rail is also, when in place, to be supported under its base by the anvil.* This is fairly deducible from the manifest purpose of the inventor, from his drawing and from his specification. *It is necessary to the result supposed to have been obtained for, unless supported at the base the heated end of the rail would be in danger of being driven downward between the blocks by the blows of the sledge or hammer used in welding, while the part of the rail not operated upon, being cooler, would remain suspended between the blocks. And that the inven-*

tion contemplated a bottom support for the rail on the anvil is made clear by the drawing. That shows no space between the anvil and the base of the rail. On the contrary it exhibits a bottom support on the anvil as well as latteral support by the modeled faces of the two blocks. The rail is thus confined on three of its sides, as in a mold, and the words of the specification, *fairly construed*, convey the same meaning. Thus; it is said the fixed block is cast nearly as high as the anvil, with its farther edge shaped to fit the side of the rail when it lies across the anvil in its natural position. The rail then is to lie upon the anvil, having the anvil as a bottom support. Unless it does, the shaped edge of the blocks cannot fit its sides."

The case of *Wicke* vs. *Ostrum* (103, U. S. 461, S. C. 26 L. Ed. 409), is in point.

In the official report, the claims of the patent are omitted in the opinion of the Court by Chief Justice Waite, and consequently the force of the decision is not seen. The claims are given in the L. Ed. U. S. S. C. Rep , and are as follows:

"1. The employment of the grooved spring jaws H, substantially as described, for the purpose of receiving the nails and to guide them to their proper places."

"2. The combination with the spring jaws H, of the rising and falling plungers E, constructed and operating substantially as and for the purpose described."

"3. Arranging the plunger E, with a disk-shaped collar *i*, or its equivalent, to operate in combination with the spring jaw H, substantially as, and for the purpose specified."

"4. The arrangement of the circular portion, *e f*, on the cam C, to operate in combination with the gate B, and treadle *d*, substantially as, and for the pnrpose set forth."

"5. The arrangement and combination of one or more adjustable carriages F, table J, and slide L, constructed and operating in the manner and for the purpose substantially as specified."

"To make this claim intelligible it must be read in connection with the specifications to which it relates, and in this way it becomes apparent that the object of the inventor was to secure a patent for a new combination of old elements. Groved spring jaws were confessedly very old. So were rods of iron with curvilinear projections, like those called plungers and cams, of almost any shape, and treadles, and levers, and adjustable carriages, tables and slides.

The use of these things separately could not be patented; but the combination of them so as to produce a machine useful for driving nails was new. This the inventor might claim, and so far as anything appears he was entitled to a patent for the employment of spring jaws in the combination and for the purpose described in his specifications; for the combination of his peculiarly-shaped plungers, with spring jaws for the purposes of such a machine; for the use of the cam he described in combination with the gate and treadle to drive his machine, and for the adjustable carriage, table and slide, when used on such a machine as his."

The fair construction of the fourth and fifth claims is, that they are for the combination, the cam, gate and treadle, or the adjustable carriage, table and slide, with the elements of the other claims."

The claim or summing up, however, is not to be taken alone, but in connection with the specifications and drawings; the whole instrument being construed together. But we are to look at the others only for the purpose of enabling us correctly to interpret the claim.

Brook v. *Fisher*, 15 How. 212 (215).
Bates v. *Coe*, 98 U. S. 31 (38, 39, 42).

Following the precedent of the above cited decisions, the fourth claim of the Day patent must be interpreted by the aid of the specification to include the bottom of the car, and the peculiar method of pivoting the draw bar and the diagonal brace, so that their pivots shall be in the same axial line, and that they shall rise and fall in the same plane.

To construe the fourth claim of the Day patent in this way is taking less latitude than is allowed in the interpretation of the claims of the patents in the cases just cited.

The claim in this case now before the Court is:

4. The combination with the draw-bar C, and the scraper A, of the diagonal brace E, as and for the purpose set forth.

By reference to the specifications, it appears that this combination is attached to the bottom of a car, in front of the wheels. The draw-bar being pivoted at its front end in a bracket dependent from the bottom of the car. The diagonal brace E, is also pivoted to a bracket dependent from the bottom of the car. At their outer or rear end they are bolted or ortherwise solidly fastened to the scraper A, completing the combination.

If the rule in the cases cited is followed, the bottom ot the car becomes a part of this combination, for, without that, the combination would be inoperative for the purpose set forth, which is to clear the track of a railway of obstructions such as snow or ice, mud, &c.

There is an other peculiarity in this device as set forth, and that is the place and manner of pivoting the diagonal brace E, (so termed because it is diagonal to the line of draft and to the car,) in relation to the place and manner of pivoting the drawbar C. The draw-bar C is pivoted in the hanger D, pendent from the car, or it may be pivoted directly to the sill of the car, that is, it is pivoted to the car at or near the outer side of the bottom of the car, and over the track to be cleaned or, as expressed in the specification, in the line of the draft D, parallel with the hanger D of the scraper and car. The diagonal brace C is pivoted to a hanger D′, but near the longitudinal center of the car, both draw-bar and diagonal brace being thus pivoted on the same axial line.

The manner and places of pivoting the draw-bar and diagonal brace enter into this claim, being a part of it, covered by the reference to the specification "as and for the purpose set forth," and forms a very essential part of the invention.

If the only purpose of this brace was to resist lateral pressure, the best and most effective position would be one at right angles to the line of the draw-bar, because the lateral pressure on the scraper is in that direction. But as the scraper has to have a vertical movement to allow it to be lifted from the track when not in use, and to permit it to rise to pass over the inequalities of the rail and other obstructions—this brace at right angles cannot be used. If the draw-bar is solidly attached to the scraper, and this brace at right angles also attached to it in like manner, the scraper would be incapable of any vertical motion, because these two bars by which it is suspended would move in different planes when rotated on their pivots, one turning up lengthwise of the car, and the other turning up across the car. The result of this combined action is that the scraper remains immoveable or the device is torn to pieces. But if these two bars are pivoted on the same axial pivot, then they can rotate on the pivot and they will move in the same plane. To bring these two pivots in the same line it is necessary to bend the bars near the point of pivot, the bend being at an angle of forty-five degrees, and the brackets and pivots must be set at the like angle with the line of draft. But this entails a side pull on the pivots and the bracket, which will destroy the connection in a short time, so that this brace at a right angle with the draw-bar is impracticable. It is necessary to find some other location for this brace in order to use it. To find the proper location and the proper mode of pivoting this brace is a matter of invention.

This is the invention in this claim. The diagonal brace is brought up to near the center of the car body, on a line with the pivot of the draw-bar, the brace is bent near the end, and the socket for the pivot in the end is brought so that its longitudinal center is in the same straight line as the longitudinal center of the socket for the pivot on the draw-bar. These pivots are on one and the same straight line. That is to say they are on the same axial line, or if a straight rod was used for the pivot the draw-bar and the brace would both turn on it. The two bars move together in the same plane and the scraper always retains its vertical position over the track while attached to the car.

This must be included in the claim to make it effective and is included by the words "as and for the purpose set forth." The claim for a combination of a draw-bar and a scraper with a diagonal brace would be inoperative if not pivoted to the bottom of a car, or its equivalent, and the brace must be attached to the car in this particular place and in this particular manner. This had been sought for years, but it was not found or invented until Day invented it. This construction of the fourth claim, as interpreted by the specification, is the only combination which has ever effectually done the work of clearing the track of a street railway.

Having determined the scope of this claim, and the invention included in it, an examination can be made of the patents produced as anticipating it.

The first is the Scofield patent, for a wheel plow. I would say here that in all these plow patents, that if there is any such thing in the device or in the use of it to produce lateral pressure, as in the track clearer, that such lateral pressure is produced by the mould-board and is resisted by the land-side of the plow. That the frame under which it is suspended or by which it is carried never resists this lateral pressure.

The Scofield patent (page 1, Exhibits) is for a sulky plow, in which A is a plow beam of ordinary construction. The mould-board and land-slide are of the usual construction. Behind the plow an axle is attached to the rear end of the plow-beam. As this attachment is made at one end of the axle, near the wheel, the other end of the axle would be without any means of draft, if the patentee had not inserted the brace between the outer end of the axle and the forward end of the plow beam. This brace is the draft rod for that end of the axle, not a brace to resist the lateral strain of the plow, for that is taken up by the landside.

So this patent cannot be said to anticipate the complainant's patent for it performs none of the fuctions of the complainant's patent, and could not perform any of them without a total change of construction.

The next patent which I desire to take up is the patent of Hutchinson (page 15, Exhibits) which is for a gang plow. This gang plow has a frame supported at the rear on a caster wheel, and in front on the axle of two wheels, the frame being attached to the axle by two rods passing down through the axle. The plows are suspended from another frame resting on this frame. The second frame is said to have its ends resting loosely in the first frame, the back end resting upon the rear cross-piece, and the front end resting on a cleat in the front of the first frame. In this specification it seems to be taken for granted that the frames carrying the plows will remain on the first frame and be carried along with it, without being fastened to it in any way. The lateral strain of the plows is resisted by the landside, and there is none on the second frame. There is shown in the drawings a rod connected to the second frame and hitched to a staple on the axle. This rod is more of a draft rod than a brace to resist lateral pressure, for there does not seem to be any other means of drawing this second frame except this rod, and therefore this rod and second frame do not anticipate the complainant's patent.

The next plow patent is the Wattles patent (page 20, Exhibits). This patent has an axle to which the front end of a frame carrying plows is secured. This frame is supported at the rear on a caster-wheel, and there is a brace from the caster-wheel to the axle. This brace is more a draft rod than a brace to resist lateral strain, for there does not seem to be any lateral pressure to resist.

These are all the plow patents introduced by the defendant as anticipations of the complainant's patent. It is evident that none of them suggest or indicate in any way the device covered by complainant's patent, nor are they capable of an analogous use. Therefore these patents cannot be considered as anticipating in any way the invention of the complainant,

The next class of patents to be considered is the harvesters or mowers. These all carry a cutter-bar projecting from the side of the machines, and in front of the wheel. This cutter-bar supports the knives or blades and the shields by which the grain or grass is cut. The resistance to the progress of the machine in a straight line is made by this cutter-bar on the outside of the wheel cutting the grain, and the tendency of the machine is to turn to the side carrying the cutter-bar. That is to say, that the resistance of the cutter-bar would cause the machine to work in a circular path, and this tendency is designated as the side draft. The cutter-bar is placed at the apex of nearly a right-angled-triangle of which the axle is the base. A bar located near one end of the axle forms with the axle a right angle, and carries on its outer end the cutter-bar. A rod extending from the the outer end of the bar carrying the cutter-bar, to the end of the axle, is the hypothenuse of the triangle. This triangle forms a solid frame, to the base of which the tongue for draft is attached. As the mower is drawn forward by the tongue, the resistance of the cutter-bar tends to throw the forward end or apex of the triangle outward, and the sides would follow this movement if they were not prevented. The tongue holds the axle or base of the triangle at right angles with the line of draft.

The outer end of the axle being thus prevented from turning inward, holds the apex of the triangle from yielding to the side draft, by means of the connecting rod, or hypothenuse, so that this rod becomes a draw-bar, to resist outward pressure, instead of a brace.

The first of these is the Schnebley patent (page 3, Exhibits). In this the cutter-bar is carried on a bar on the outside of the wheel, pivoted to the rear end of the frame, which is outside of the wheel, and the outer end of the cutter-bar is supported by a brace pivoted on the same pivot.

This certainly is not our device.

The next is the Goodwin patent (page 29, Exhibits), in which the diagonal brace is in fact a restraining rod, to keep the mower from yielding to the side draft of the cutter-bar.

The next is the Perry patent (p. 31, Ex.), and it contains the same frame and for the same purpose as that shown in the Goodwin.

The second Perry patent (page 34, Exhibits) shows the same device for the same purpose.

These devices would not suggest to any one the device used by the complainaut for a totally different purpose, and therefore could not be held to anticipate the fourth claim involved in this suit.

If the Day patent had been the prior patent, none of these patents could be held to infringe the fourth claim, because it includes elements not found in any of them, and its principle of operation is distinct and different, and so is its purpose. Therefore the rule, that if a prior patent would not infringe the patent in suit, if the patent in suit had been the first, then such prior patent cannot be held to anticipate the patent in suit, should be applied. Under this rule, it would be impossible to consider any of these plow or mower patents an anticipation of the fourth claim of the Day patent.

The last set of patents introduced in evidence as anticipating the complainant's patent is the class of track cleaners and snow plows.

The first of these is the patent of James Sheridan (page 5 of Exhibits), designated as the "Sheridan 1862." This patent has a scraper standing diagonally across the track. The patentee says (page 6, Exhibits) to keep the scraper on the track, it is necessary to brace it laterally, and the braces fulfilling this function must be so arranged as not to interfere with its free action in other respects. To this end I fit the clamp G loosely around the beam (the scraper is attached to this beam and the beam stands nearly vertical) and from it carry two braces, *a a*, on each side of the beam to a hinge joint *v* (in dotted lines) on each side of the brackets D. There are four braces in all which converge from the clasp to the point *v*, in one direction and diverge from the clasp to the same point in the other, as shown in Fig's 1 & 2. By this means the beam is firmly braced on each side, and at the same time is left perfectly free to rise and fall and to vibrate longitudinally on the pivot *r*.

It will be seen that these braces are not attached to the scraper, but to a clamp through which the beam of the scraper passes, and in which the beam has a vertical motion. The beam is in part the draw-bar of the scraper, but, if the scraper was controlled by the beam alone it would simply rub along the track and not remove any obstruction. The beam is suspended by a pivot which is inserted in the slots in the two brackets attached to the bottom of the car. This gives two motions to the scraper, one vertical and the other a horizontal or swinging motion forward and back.

The real draw-bar to this scraper is the stiff double spring behind it, which holds it up to its work, but permits it to yield to unyielding obstructions.

This is not the complainant's device, and the only element common to the two is the scraper.

The next patent is the Johnson & Bolton (pp. 7 & 8, Exhibits). In this patent the scrapers are carried on the forward end of broad stocks, which are suspended from the car by a rod which passes from one side o the car to the other, and is supported by brackets on the floor of the car. This rod forms a hinge upon which the stocks vibrate as the track clearers rise and fall. To enable the clearers to yield to any immoveable obstruction, a coiled spring is placed on the shank of the track clerners, and rests against a box on the stock and a collar on the shank, which allows the clearer to slide back until it is raised over the obstruction.

To keep the clearers at a fixed position above the track, the stocks are joined together by a rigid cross-bar. This cross-bar is supported on one end of a bar, which is pivoted on the axle of the car wheels, and has its outer end resting against a stud in the bottom of the car. This cross-bar from one stock to the other is in no sense of the word a diagonal brace, nor does it perform the function of the complainant's diagonal brace of resisting the lateral pressure. On the contrary it communicates the lateral pressure on one scraper to the other and tends to throw both off the track.

This Johnson & Bolton patent does not show nor indicate in any way the appellant's invention, and therefore cannot be said to anticipate it.

The next is the Elliot patent (p. 18 of Exhibits), in which one broad curved scraper is imagined to be the equivalent, or the same thing as the appellant's draw-bar, diagonal brace and scraper. Nothing farther need be said about this patent.

The Wells patent (page 22 of Exhibits) shows the draw-bar and scraper of the appellant's device, but the draw-bar is a spring which permits the scraper to yield to the inequalities of the track. These springs at each end of the car are connected by a cross-bar. To the center of this cross-bar a lever is attached, which is operated from the platform of the car.

The scrapers are elevated or depressed by this lever, and when in use held down on the track by the lever. The cross-bar is alleged by the defendant to be the same as the diagonal brace of Day's patent, but it does not perform the function of the diagonal brace and therefore cannot anticipate it. In fact it increases the difficulty of keeping the scrapers on the track by forcing one to follow the other whenever it may be pushed off the track by any obstruction, and it has no tendency to bring them back to their normal position.

The last of these patents is the Otis (page 25 of Exhibits). In this patent the patentee states that: "The nature of my invention consists, first, in arranging the two shoes of a scraper and the connecting parts in such a manner that the shoes may automatically adjust themselves to the varying gauge of the track." As the other branches of his invention do not relate to the complainant's device, I will not refer to them.

This patent shows the draw-bar pivoted to the car with the scraper at its lower end. The shoes or scrapers at one end of the car are connected by a rod, which passes through them. This rod has a screw-nut at each end. Two sleeves are placed on this rod, with one end of each resting against the scraper, and the other against a forked spring. This spring is pivoted at the shank on a bar extending from one side of the car to the other, and supported or pivoted in the housings in which the draw-bars of the scraper are hinged.

It is urged by the appellee that this forked spring is the same as the complainant's diagonal brace; but the office of this spring as set forth in the specification is to keep the sleeves against the scrapers and to permit the shoes or scrapers to be brought nearer together to suit any variation in the width of the tracks. And to assist in this change, the draw-bars are made flexible.

It is evident that in this patent the lateral pressure was not considered; but if it was taken in account, the spring in the draw-bar and the spring behind the sleeve and scraper permitted the latter to yield. This action is the opposite of the action of the diagonal brace in the Day patent, and therefore cannot be tortured into an anticipation of the fourth claim of his patent.

The foregoing are not all the patents adduced in evidence; but they are all that the defendant saw fit to have its expert witness examine, and therefore it is not necessary for me to consider the others.

The plow and harvester patents being for a use so different from complainant's device, and so differently constructed, fall under the rule in Clough vs. Manufacturing Co., 106, U. S. 166 (176), "that a structure not designed for the same purpose as the patent in question, and which no person looking at or using would understand was to be used, and in fact never was used for the same purpose, does not deprive the invention of novelty.

Being for such different purposes, they can scarcely be cited as showing the state of the art.

The track clearers and snow plows are for the same purpose as Day's invention and are properly cited as to the state of the art.

If these patents are cited as showing the state of the art, and if this is to be supplemented by the general and common knowledge of the world as to the use of a diagonal brace in all kinds of structures, "it affords only an illustration of how long the mechanical world will stand with all the elements of a great improvement in its hands, placing them in almost the conditions demanded for its realization, and yet stop short of the desired end. These patentees manifestly did not know of, or in the least approximate the idea of a diagonal brace pivoted on the line of pivot of the draw-bar in combination with the draw-bar and the scraper. They all used other elements, and this for years. It might be doubtful whether these patantees had the complainant's idea if there was no proof on the subject at all; but when you show that they are engaged in the very department of production, where it is most important; see them with the means in their hands to employ it if they know how, and for years manufacturing in a different mode, with less accuracy and at greater expense, then, upon any principle of action, this is conclusive that *these men* at least did not possess the idea.

There is still another point which they missed for the most part, viz: that the scrapers should act independently of each other. The inequalities of the tracks requires this independent movement of each scraper. The various positions of the obstructions on the two rails demand that the scrapers should act at different times. The difference in the obstructions call for a difference in the action of the scrapers. And consequently the independent action of the scrapers conduce to the efficacy of the device to accomplish the desired result.

In the opinion ot Judge Shipman, in the Court below, nothing is said of these patents introduced as anticipating devices; but it is evident that they were considered as a part of the state of the art, added to the common knowledge of the use of a diagonal brace, which it is to be presumed the Court possessed.

The Court decided that this fourth claim was invalid in view of the state of the art for want of invention. Therefore this branch of the case must be considered separately from the allegation of anticipation. The allegation of anticipation must be supported by producing the specific article, but the averment of want of invention is maintained by showing that the device is made up of many old elements, often used and for like purposes, although never before combined so as strictly to anticipate the patent in question.

The Court below interpreted the fourth claim to be " for a scraper and a draw-bar, in the line of the draft, irrespective of the method of pivoting the scraper and draw-bar together, or the method of raising or lowering either, and a diagonal brace, irrespective of the method by which it is fastened to the draw-bar or to the car, except the bar and the brace must be pivoted on the same axial line to the bottom of the car.

The Court continues, " The scraper and the draw-bar were both old. The only part of the combination which is claimed to be new is the diagonal brace to enable the scraper to be kept in its place on the track."

That is to say, that the Court considered the scraper and the draw-bar to have been old in view of the state of the art, and that the addition of the diagonal brace was putting in a new element, not before used in that construction.

The Conrt further says, " The method by which these two bars are secured to the scraper or to each other and to the car undoubtedly required inventive skill.

Can this proposition be divided; did the Court intend to say that " The method by which these two bars are secured to the scraper or to each other, undoubtedly required inventive skill," and also that " The method by which these two bars are secured to the car, required inventive skill ?"

The Court includes in the same sentence " and the method by which the scraper, draw-bar and brace can be effectually raised and lowered from the platform of the car undoubtedly required inventive skill."

If the method by which these two bars (i. e. the draw-bar and the diagonal brace) are secured to the car, required inventive skill, then certainly this fourth claim, the combination with the draw-bar and scraper of the diagonal brace must also require inventive skill. For the reason, as before shown, that the method of securing these two bars to the car constitutes the underlying principle of the fourth claim, and is necessarily included in it, in order that the combination may perform the duty ascribed to it by the specification. Again, if the method by which the scraper, draw-bar and brace can be effectually raised and lowered, from the platform of the car, undoubtedly required inventive skill, then assuredly the fourth claim required inventive skill; for, as before shown, the end of the diagonal brace, where it is pivoted to the car, must be so bent that the axis of its pivot shall be in the same straight line as the axis of the pivot of the draw-bar in order to enable the draw-bar, the diagonal brace and the scraper to raise and fall, or to have any vertical motion whatever, and this peculiar method of pivoting the draw-bar and diagonal brace to the car, so that the line of pivot shall be the same for both, is contained in and forms a part of this fourth claim; for, in the specification it is said "a diagonal brace E, whose outer end is pivoted to a hanger D′, parallel with the hanger D, but nearer the longitudinal center of the car, both draw-bar and brace buing thus pivoted on the same axial line, so that when it is desired to raise and lower the scraper the same will be done without disturbing the vertical position thereof with relation to the track, * * * while the scraper, and the parts to which it is attached, are free to move in a vertical plane, this brace E effectually resists any lateral pressure to which the scraper may be subjected in removing obstructions from the rail."

And the fourth claim must be interpreted by the aid of the specification, to give it any force or effect; and to enable the combination to rise and fall, it must include this peculiar method of securing the bars to the car which the Court below says requires inventive skill. In a combination claim the patentee admits that all the elements are old. To entitle an inventor to a patent on a combination, a new and useful result must be produced, which is the result of the combination, and in which each factor must co-operate with the others to produce the result. But the law requires something more than this.

The combination must not be the result of mere mechanical skill; the skill of the workman educated in his trade and trained in its manipulation; but the outcome of the exercise of the inventive faculty of the mind.

In this case, one of the effects to be produced was to bring the scraper on the rail and permit it to remain there by its own weight. The second, was to allow a free vertical movement of the car without lifting the scraper from the track. The third, was to allow the scraper to be removed from the track when not needed. The fourth, was to crowd the obstruction off from the track by resistance to pressure from the front and sides of the scrapers, when the scrapers were on the track.

In the summer the obstructions are but few In winter the snow and ice accumulate on the track or rail to such an extent, even with a slight fall of snow, as to render travel on the rail exceedingly difficult and even dangerous. The snow packs on the rail and becomes a hard nodule of ice, frozen fast to the rail, and such an obstruction that the car is often thrown from the track.

To find a means to remove these obstructions, was an easy matter. Gangs of men with picks and shovels, for years, kept the tracks of the street railways in the city of New York clear of snow and ice, at least sufficiently so to enable the cars to pass over the road. Sometimes salt was sowed thickly over the track and the snow and ice melted off. But no means were successfully devised whereby the car would clear a passage for itself and leave a clear track behind, until Day's invention.

These cars, like all railway cars, ride on springs, that is, springs are always interposed between the axles of the wheels and the body of the car. These springs yield in proportion to the load in the car, and also to the inequalities and roughness of the track, consequently the distance between the body of the car and the rail is constantly, quickly and often violently changed.

The track itself is often irregular and uneven, and there is a difference in the level of the two tracks in every few feet.

If the scrapers are rigidly connected together, the one resting on the higher track will raise the other clear of the rail; hence it is necessary that the draw-bars and brace of each scraper should be independent of the others, and each scraper free to act by itself.

The problem was, how to connect the scraper to the car so that the scraper should at all times rest on the rail; adjust itself to the inequalities of the track; just remain in contact with the rail without extra pressure, and never leave it unless purposely changed; to remove the obstructions from the track, and also to permit it to be lifted from the track when not in use, and at the same time to preserve its vertical position over the rail.

It is evident that if the draw-bar is rigidly attached to the body of the car it could fulfill none of these conditions. The draw-bar must be pivoted to the car, but how and where to pivot it can only be determined by experiment.

Sheridan, in 1862 (Sheridan patent, page 5 Exhibits), tried the experiment of pivoting the draw-bar directly over the scraper, so that it stood nearly perpendicular. This scraper failed to do the work.

Johnson & Bolton, in 1863 (page 8, Exhibits), pivoted the draw-bar, or in their case the push-bar, just in front of the wheels, and carried the scraper on the projecting forward end of the bar, and held it up with a spring-bar fulcrumed on the axle of the wheels. The device failed.

Sheridan again tried the experiment (page 12, Exhibits,) by using springs for draw-bars, pivoted or fastened almost directly over the scraper. This followed the first and dropped out of sight.

Elliot, in 1867 (page 18, Exhibits), attached his scraper rigidly to the frame of the engine, and of course failed.

Wells, in 1868 (page 22, Exhibits), attached his draw-bar rigidly to the under side of the platform of the car. This draw-bar was a powerful spring, which allowed the distance between the body of the car and the road to vary; but there was no means provided to resist lateral pressure on the scrapers, and therefore the obstructions were not removed, and this device was of slight use

Otis, in 1868 (page 35, Exhibits), pivots his draw-bar to the body of the car, near the platform and in the line of draft, but attaches a wheel to the scraper to hold it up from the rail. It seems from the drawing that the shoe or scraper was intended to set square across the track. The result of such position is that it piles up whatever may be in front of it and removes nothing from the track. Of course, when the pile of accumulated rubbish gets large, some of it is crowded off the line and thus the track is relieved. In this case there is no lateral pressure in removing obstructions, but if there were such pressure, special provision has been made to yield to it. The draw-bar is made with a spring to permit a lateral motion of the scraper, and a spring is placed on the inside of the scraper to assist in this movement. This device has failed in operation.

These show what experiments were made to solve the problem, and what length of time was consumed in trying them, and they also show that the problem was not solved.

Now, Mr. Day sees what the trouble is, and he invents a track-clearer which fulfills all the requirements of the proposition. The scraper always remains on the track unless purposely removed. The free vertical motion of the body of the car is not impeded, nor does such motion interfere with the free action of the scraper. If there is anything on the track which can be removed without breaking the scraper it is removed. If it is too large or too solid to be readily forced off, the scraper rises over it. The diagonal set of the scraper over the track moves all obstructions outward and off the track. The scraper can at will be lifted from the track, but its vertical position over the track is not changed. It always stands diagonal to the track.

How did he do it?

He began his experiments in 1869, with a draw-bar and a scraper. The draw-bar was attached to the bottom of the car by a joint, and in front of the wheel. The scraper was a peculiar shape, made to scrape the rail, and clear off the obstructions. There was no provision to resist the lateral pressure on the scraper, because it had not been foreseen. As soon as it became evident that means had to be provided to resist this pressure, the idea came to Day to use a diagonal brace, and *to so pivot it* that it would move with the draw-bar. Then he began his experiments to find how and where the brace should be pivoted, and finally a rod was run through the pivot of the draw-bar, and extended partly across the bottom of the car and the brace pivoted on this rod. In order to pivot the diagonal brace on this rod, he bent the brace near the end so as to bring the socket for the pivot in a line with the socket for the pivot on the draw-bar. To do this required invention, and the fact that it remained so long unknown or unused is an evidence that it required something more than mere mechanical skill to conceive of the idea of a scraper and a draw-bar, in combination with a diagonal brace, pivoted on the same axial line as the draw-bar for a railway track-clearer.

This combination of a scraper, a draw-bar, and a diagonal brace, was the invention Day claimed in the fourth claim of his reissue, and in the second claim of the original. This combination produces the following results: The scraper rests on the rail with sufficient weight to remove ordinary obstructions; it is free to rise and fall without changing its vertical position over the track, and the lateral pressure on the scraper is resisted, so that obstructions are pushed off from the rail and outside of the track.

This is something more than the mere resisting of the lateral pressure by the diagonal brace, which, in the opinion of the Court below, was all that was covered by the fourth claim of complainant's patent.

The defendant insisted, at the hearing below and in taking its proofs, that the words "as and for the purpose set forth," included "the shank B," and made that an essential element of this fourth claim. This shank B was interposed between the draw-bar and brace, on one side, and the scraper on the other, to ensure mechanically the accurate position of the scraper over the rail, which was one of the essential points of this invention. The Court below seems to have adopted the defendant's construction of this claim in this respect, by saying, "The track clearers of the defendant have a scraper and a draw-bar in the line of the draft, and a diagonal brace, the two bars being pivoted to the car in the same axial line; but the method by which they are fastened to the scraper or to the car are not the methods of the patent."

This shank B is claimed in the third claim of the patent—and to adopt the defendant's construction would be to make two distinct claims of the patent cover—not different things—but one and the same thing, a result to be avoided if possible.

Tondeur vs. Stewart, 28 Fed. Rep. 561 (564).

If two patents are granted for the same improvement the later patent is void. Suffolk M'f'g Co. vs. Hayden, 3 Wall 315 (319). In a patent having several claims, each claim stands by itself, and is for an improvement different from those claimed in the other claims. In such a patent each claim is a separate patent by itself, and can be sued upon without regard to the others. One claim may be declared valid and another invalid—just as one patent may be decided to be valid and another invalid, in the same suit.

Parks vs. Booth, 102, U. S. 96.

Therefore when the complainant claimed, in the first claim of the original and the third claim of the re-issue, "The construction and arrangement of the shank B, as described with relation to the scraper A, draw-bar C, and diagonal brace E, as and for the purposes set forth," it is to be presumed that he did not claim the same thing in the fourth claim when he claimed, "The combination with the draw-bar C, and scraper A, of the diagonal brace E, as and for the purpose set forth."

To interpolate into this fourth claim, by force of the words "as and for the purpose set forth," the shank B, as an essential part of the combination, would be to render the fourth claim the same as the third, and therefore invalid.

The draw-bar had been attached to the scraper before the shank B was devised and the diagonal brace had been attached to the scraper or draw-bar before the shank B was interposed to insure accuracy of position. The patentee knew that the draw-bar could be bolted to the scraper without the shank, and that the draw-bar and diagonal brace could be bolted together without the shank, or that they could both be bolted to the scraper without the shank B. A look at this shank B shows that it was merely a mechanical means to insure an exactness in the position of the scraper in reference to the draw-bar and brace—or in the words of the patentee, "perfect accuracy in the 'set' of the scraper is secured, an essential feature of my invention." And as this perfect accuracy in the "set" of the scraper was an essential feature of his invention he claimed the means to produce it, in the first claim of the original and in the third of the reissue.

Now, as this "accuracy of the set of the scraper" depended upon the position of the scraper with the draw-bar and the brace, and as it was evident that these three might be placed in the proper relation without the interposition of the shank, and be simply bolted together, the patentee claimed in the fourth claim the combination of these three elements, without the shank. By so doing he indicated his intention to keep the shank B out of the combination claimed in the fourth claim. This shank B is not necessarily a part of this combination, for the combination can be constructed and operated as well without it as with it. But the car body and the pivots and manner and plan of pivoting the draw-bar and brace are necessary, because the combination cannot be used or constructed without them. Therefore the shank B should not be interpolated into the claim, while the others should.

In construing a patent, the Court should proceed in a liberal spirit, so as to sustain the patent, and the construction claimed by the patentee himself, if this can be done consistently with the language he has employed.

Tondeur vs. Stewart, supra.

As to the infringement:

To constitute identity of invention, and therefore infringement, not only must the result obtained be the same, but in case the means used for its attainment is a combination of known elements, the elements combined in both cases must be the same, and combined in the same way, so that each element shall perform the same function, provided, however, that the differences alleged are not merely colorable, according to the rule forbidding the use of known equivalents.

Electric Railway Signal Co. vs. Hall R. Signal Co., 114 U. S. 87, (96).

In determining the question of infringement, the Court or jury are not to judge about similarities or differences by the names of things, but are to look at the machines, or their several devices or elements in the light of what they do, or what office or function they perform; and to find that one thing is substantially the same as another, if it performs substantially the same function in substantially the same way to obtain the same result, always bearing in mind that devices in a patented machine are different, in the sense of the patent law, when they perform different functions, or in a different way, or produce substantially a different result.

Cantrell vs. Wallick, 117 U. S. 689, (695).

Lake Shore R. Co. vs Car Brake Shoe Co., 110, U. S. 229, (238).

In the case before the court, the comparision between the device described in the complainant's patent (p. 43, or 49 of Exhibits) and claimed in the fourth claim, and the device used by the defendant can easily be made.

It is stipulated by and between the counsel for respective parties that defendant is licensed under James N. Clark's patent on track clearers No. 189,696, dated April 17, 1877, (p. 37, of record.)

The complainant also introduced in evidence a model of the device used by the defendant, marked "Complainant's Exhibit A."

The defendant's witness, on his direct examination (Int. 22, p. 37 of record) after describing the construction of the device patented by Clark, states that—"The structure in Complainant's Exhibit A" contains the elements thus described, combined in the manner described, to produce the result intended in the patent."

His cross-examination (p. 38, of Record) on this point was as follows:

× Int. 25. Do you find in Complainant's Exhibits A, which you say is constructed in accordance with the Clark's patent, the combination of the draw-bar and scraper with a diagonal brace?

A. I find in the said exhibit the combination of a draw-bar, a scraper and a diagonal brace.

× Int. 26. What is the use of these three separate elements, and what is the result of the combination?

A. In complainant's "Exhibit A," the draw-bar and brace are used to hold the scraper in front of the wheel of the car as it moves along a track, and to permit in the scraper such vertical movement as may be required for the scraper, which performs the usual function in such structures—that is, the removal of obstructions from the track.

× Int. 27. In the "Complainant's Exhibit A," are the draw-bar and brace pivoted in the same axial line?

A. They are fast to a bar pivoted at its outer ends in bearings fast to the bottom of the car or platform.

× Int. 28. Can the scrapers in that device be lowered and raised without disturbing the vertical position thereof with relation to the track?

(Objected to as immaterial.)

A. The vertical movement of the said scraper is in a plane extending always across the track and without lateral displacement of the scrapers from the track.

This shows that the defendant's witness considered that it used the combination of the fourth claim of complainant's patent, in the device shown in "Complainant's exhibit A." It is also evident that it was used for the same purpose. The elements each perform the same function in both, and the combination produces the same results.

A comparison of the "Complainant's Exhibit A" (which represents the defendant's device) with Day's patent, shows: that the draw-bar is attached to the bottom of the car near its front end, in advance of the wheels, and in the line of draft, or nearly so, and that it is secured at its other end to the scraper; that it performs the same office as the draw-bar in the patent; that the diagonal brace resists lateral pressure against the scraper; that the draw-bar and diagonal brace permit of the raising and lowering of the scraper, without changing its vertical position over the track; and that the scraper sets diagonally across the rail and removes any obstructions from the track by crowding it outside and off the rail.

To fasten the draw-bar and the diagonal brace to the same straight bar, and pivot that at its ends, and then try to show that such a method of pivoting these bars is different from pivoting them in the same axial line, is sheer nonsense, for it is only putting in the axis bodily instead of supposing it to be there. It is making the axial line tangible.

The defendant has endeavored to show that the scrapers in the device used on its cars, are held down on the track by the spring of the draw-bar and brace, instead of being held down by its own weight, as in complainant's patent. If this was the case, (which we deny) it would not help their case in the least, for it has been held from time immemorial, that in mechanics, a spring was the equivalent of a weight, and that the substitution of one for the other was a mere colorable change, and would not avert an infringement. But these scrapers in defendant's device, rest on the track by their own weight, and will remain there until they meet with an obstruction too large to be removed by them. The patentee says: "For use the rack-rod is unhooked, and drawn upwardly, till the scrapers rest in the required position upon the track, when the rod is hooked in the loop by one of the projecting notches d, thus keeping the scrapers down on the track."

This implies that they would not stay on the track without being held there, but it is evident that there is nothing in the device itself to cause them to leave the rail. The force which lifts the scraper from the rail is an external and accidental one, and may or may not be applied; therefore the scrapers rest on the rail by their own weight.

Clark attempted to make his scraper unyielding in certain particulars, that is, the connection between the combination of the draw-bar, the brace and the scraper, and the combination for raising and lowering the scraper, was solid.

The action of the rack-rod on the lever, and the action of the lever on the draw-bar and brace are positive. That is, if the end of the rack-rod is drawn up, the ends of the draw-bar and brace go down, and the scraper with them. When the rack-rod is drawn up and hooked on the link, the position of the scraper on the rail is fixed and permanent. If this lever, for the rack-rod and the draw-bar and brace, constituting a lever fulcrumed on the bar pivoted to the car, is rigid in its whole extent, the action of the scraper on any obstruction on the track would be positive. The obstruction would have to be removed or the scraper would break.

To avoid this difficulty Clark made the draw-bar and diagonal brace a vertical spring. He says, "By having the arms and braces which support the scrapers constructed of spring steel, made thin to be quite elastic, they will yield to the upward pressure when the scrapers strike any immovable obstruction and permit such scrapers to ride easily, and without injury over the same, without disturbing the position of the rack rod.'

Here it is admitted that the function performed by the spring in the draw-bar and brace of the Clark patent, is the same as that performed by the weight of the scraper and the draw-bar and brace of complainant's patent, and shows that this is a mere colorable change as far as the combination claimed in complainant's fourth claim is concerned, and is not such a change as will avoid an infringement. The complainant's scrapers pivoted to the car and resting on the rail by their own weight, yield to the upward pressure when the scrapers strike any immovable obstruction, and permits such scrapers to ride easily and without injury over the same, without disturbing the position of the device for raising and lowering them. Pressure in a machine may be produced by a spring or by a weight, and where that is so, the one is a mechanical equivalent for the other.

Imhaeuser vs. Buerk, 101 U. S. 647, (656).

If the rack-rod in the Clark device became by chance unhooked from the loop in the standard on the platform, the scraper, the draw-bar and the brace would perform the same function and in the same manner as the same elements in the complainant's patent; or if the rack-rod is broken off, then the scrapers would operate as the scrapers in the complainant's patent—by their own weight.

Can the infringement or non-infringemen of the complainant's patent depend upon the rack-rod being hooked up or not?

This is too slight a change to avoid an infringement, when the costruction and operation of the device in other respects is the same.

Ives vs. Hamilton, 92 U. S. 426, (430).

Clark devised a way of raising the scrapers from the track, but that invention, (if it was invention,) did not authorize him to use the prior invention secured to the complainant by the fourth claim of the patent in suit.

Cantrell vs. Wallack, 117 U. S. 689, (694).

There is another thing which should be considered in relation to the Clark patent, which tends to show that he or the office did not regard the sub-combination of the spring, draw-bar and spring brace with the scraper, as anything new; that is, that he did not claim it as his invention, or that if he did the office refused it. It was merely substituting the spring, one well known mechanical means, for the weight, another well known means, to perform the function of keeping the scraper on the track as in the

Day patent, which was an old machine at the date of the Clark patent, and such a change is not patentable.

The defendant uses a track clearer made under the Clark patent, and the device it uses contains the combination of the fourth claim of complainant's patent, viz, the scraper bolted to the draw-bar and diagonal brace to clear the track, the draw-bar pivoted to the body of the car in front of the wheel, and the diagonal brace pivoted to the car in the same axial line as the draw-bar, to permit the scraper freely to rise and fall, and maintain its position over the track, to clear the track, and to resist lateral pressure. These elements perform the same functions as the same elements in the complainant's patent, and in the same way, and produce the same results, and therefore infringes complainant's patent.

Imhaeuser vs. Buerk, 101 U. S 647, (655 and 656).

Therefore we submit, may it please your Honors :

That the fourth claim of the complainant's patent, which is, "The combination with the draw-bar C, and scraper A, of the diagonal brace E, as and for the purposes set forth," should be so interpreted as to make it a valid claim for a useful invention, by adding thereto, as comprised in the words, "as and for the purpose set forth," the bottom of the car and the peculiar place and manner of pivoting the diagonal brace.

That when so interpreted, that it is not anticipated by any of the patents introduced as anticipations.

That none of the patents cited for plows and harvesters would suggest to any one looking at them the complainant's device, and that they are not anticipations, for in addition they do not show anything like this combination.

That none of the patents for railway track clearers introduced in evidence as anticipations, show the device claimed in the fourth claim of complainant's patent, and therefore do not anticipate it.

That when so interpreted, the fourth claim, in the state of the art, involved invention in the combination of the draw-bar and the scraper with the diagonal brace so pivoted in the same axial line to the car as to allow the draw-bar and diagonal brace to move vertically in the same plane, and carry with them the scraper, which would at all times preserve its vertical position over the track.

That the defendant uses the same elements in the same way, to produce the same results as those shown and described in complainant's patent, and claimed in the fourth claim, and that such use is an infringement upon the complainant's fourth claim of his patent.

May it please your Honors,

We therefore submit, that the decree of the Court below should be reversed, and that the complainant's should have a decree in accordance with the prayer of his bill.

CHARLES J. HUNT,
Of Counsel for Appellant.

Office Supreme Court U. S.
FILED.
APR 20 1889
JAMES H. McKENNEY
CLERK.

APPELLEE'S BRIEF.

Supreme Court of the United States.

OCTOBER TERM, 1888.

No. 290.

AUGUSTUS DAY, APPELLANT,
(COMPLAINANT BELOW.)

vs.

THE FAIR HAVEN AND WESTVILLE RAILWAY COMPANY.
(DEFENDANT BELOW.)

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CONNECTICUT.

WM. EDGAR SIMONDS, Defendant's Counsel.

Explanation of the Case.

THIS is a suit in equity brought by Augustus Day, of Detroit, Mich., against the Fair Haven and Westville Railroad Company, of New Haven, Conn., for alleged infringement of the fourth claim of Augustus Day's reissued patent for improvement in railway track cleaners, No. 8,388, dated August 27, 1878, based upon original letters-patent No. 125,547, dated April 9, 1872. The bill of complaint originally included Day's patent No. 190,563, dated May 8, 1877, but the issue came to be restricted to the fourth claim of said reissued patent, by a stipulation, as follows:

(Record page 19.)

> "It is stipulated between the parties hereto that the complainant seeks to make no recovery under his patent No. 190,563, dated May 8, 1877; and that complainant does not seek to recover, except under the fourth claim of reissued patent No. 8,388, but that this stipulation shall have the same effect as though complainant amended his bill in these particulars."

Therefore, the only claim in issue is the fourth claim of said reissued patent. That claim is as follows:

"4. The combination with the draw-bar *C* and scraper *A*, of the diagonal brace *E*, as and for the purpose set forth."

The defense is that this claim lacks patentable novelty unless it be construed to include parts not mentioned in the claim, in which latter case no question of infringement can arise.

The court below decided that the claim does not cover patentable novelty, (record page 50.)

Defendant is simply a *user* of the device complained of as an infringement The track clearers, which defendant uses and which are complained of as infringements in this case, are manufactured by George C. Tracy & Co., of Cleveland, Ohio, under the authority of the following letters-patent:

James Sheridan, Track Clearer, No. 35,066, April 22, 1862.
Samuel A. Otis, Track Clearer, No. 78,537, June 2, 1868.
James N. Clark, Track Clearer, No. 189,696, April 17, 1877.

The defendant's right under the Clark patent is established by a stipulation to be found on page 37 of the record, which is as follows:

> "It is stipulated by and between the counsel for the respective parties that defendant is licensed under James N. Clark's patent on Track Clearer No. 189,696, dated April 17, 1877."

Defendant's right under the Sheridan and Otis patents is established by the testimony of Hoadley P. Ives, president of the defendant corporation, to be found on page 48 of record, wherein it is shown that defendant's track clearers are purchased of George

C. Tracy & Co.,—this is to be taken in connection with "Defendant's Exhibit Otis' License to Tracy," and "Defendant's Exhibit Sheridan's License to George C. Tracy & Co.," (pages 45–49 Exhibits.)

Defendant's track clearer, which seems to be fairly shown in the model, Complainant's Exhibit A, is made in exact accordance with the description and drawing contained in said patent to James N. Clark, No. 189,696, dated April 17, 1877. It may be well to state right here that with regard to the state of the art in question, as it existed at the time Day took the original of his reissued patent in suit, that complainant's and defendant's track clearers are built upon two radically different ideas or systems: the fundamental idea or principle of complainant's track clearers is that they shall be such as are—to quote from Day's reissued patent—"resting upon the track, when in operation, wholly by their own weight;" the fundamental idea or principle of the defendant's track clearers is that they shall not rest upon the track wholly by their own weight, but shall be pressed down thereupon by elastic steel arms: this difference in the fundamental idea or principle of construction necessitates a corresponding difference in construction. Probably the fact has little pertinence in the discussion of this case, for there is absolutely nothing in the nature of patentable invention in the device described in Day's reissued patent, and referred to in its fourth claim, even though Day chose to use that exact device, but it is well enough for the court to understand that there is nothing in the nature of a servile copy of complainant's ideas in the track-clearers used by defendant.

CONSTRUCTION OF SAID FOURTH CLAIM AND THE FUNCTION OF THE DEVICE COVERED BY IT.

Said fourth claim is:—

"The combination with the draw-bar *C* and scraper *A*, of the diagonal brace *E*, as and for the purpose set forth."

There ought to be no doubt as to what this claim covers. It is *broadly* a claim to the combination of (1) the draw-bar, (2) the scraper, and (3) the diagonal brace. The claim makes no reference to the connection of these parts with the car, no reference to the peculiar manner in which they are combined, to wit, through the agency of the peculiar casting marked "B" in the drawings, and no reference whatever to the manner of pivoting. From complainant's point of view, the draw-bar and the scraper, as a part of a track clearer, are confessedly old: the *new* element he contends for is the diagonal brace, and this he thinks gives patentability to the combination. With this understanding of complainant's position, let us see what his experts say as to the scope of this claim and as to the function of the diagonal brace.

Isaac DeGraff's testimony, complainant's witness.

(Record page 20.)

Int. 27. I ask you now to compare complainant's Exhibit A with the fourth claim of complainant's Exhibit B, and tell us whether or not you find the elements described in said claim in Exhibit A?

Ans. I find parts corresponding to the draw-bar C, the blade A, and the diagonal brace E, as shown in the drawing and described in claim four (4.)

Int. 28. State whether or not in your opinion the arrangement of the elements you have named in complainant's Exhibit B, perform substantially the same functions as the corresponding elements named in the fourth clause of the claim in complainant's Exhibit A?

Ans. So far as I can see they do.

X-Int. 29. Please to state fully and exhaustively each and every utility which flows in complainant's patented device, from the presence of the combination of the draw-bar C, scraper A, and the diagonal brace?

Ans. As I understand the action of these parts the draw-bar C performs the office of drawing the blade A along the track, and in the performance of that office it is assisted by the brace E; but that brace also performs another office—that of preventing the blade A from being removed from the track by the side thrust, and in my judgment that is the whole office of the different parts.

X-Int. 30. Then, in your judgment the special utility of the diagonal brace E is that of strengthening and supporting the scraper against a side thrust; is that correct?

Ans. It performs both offices, you cannot separate the one from the other; it assists in the direct draft, and at the same time acts as a brace to resist the side thrust?

X-Int, 31. Do you consider either of those offices more important than the other, practically?

Ans. Yes; I think in view of the fact that there is a direct line, of strain through the draw-bar C, that the most important office of the diagonal brace is to prevent lateral movement of the blade A, from the track.

X-Int. 34. Then as I understand you, the improvement described in complainant's reissued patent, recited in the fourth claim, is present in substance whether the manner of pivoting be such as is shown in the patent, or be such as is shown in complainant's Exhibit A?

Ans I think so, sir.

X-Int. 35. And is also present whether or not the part B be present?

Ans. It is my judgment that in considering the office performed by the draw-bar C and the brace E, that not only the part B but the blade A, might be left out of the question; the office of the draw-bar C and brace E are the same in my judgment in both cases if attached to any blade in any way that I could imagine, so long as the attachment is made.

Isaac DeGraff's testimony in rebuttal.

(Record page 22)

X Int. 12. In your view of the matter is the shank B, described in the Day reissue patent, essential to the presence of the improvement described in the Day reissue and referred to in the fourth claim?

Ans. I consider it as merely a mechanical convenience for fastening the parts mentioned in the claim rigidly together. I can explain that more fully by saying that Mr. Day now makes them without the presence of the part B, as a separate piece.

X-Int. 13. In your view of the matter, is it or not essential to the presence of the improvement described in the Day reissue and recited in the fourth claim. that the draw-bar C, and diagonal brace E, should be pivoted at their front ends independently of each other?'

Ans, I do not consider that it is material how they are pivoted, so that the pivotal action is on the same line, horizontally in one direction and at right angles with the line of motion of the car in the other.

X-Int. 14. Is even that essential?

Ans. I consider that it is essential; that they shall be pivoted so that in lifting the scraper shall be raised, if I may so express it, vertically from the track; in other words, so that when the scraper is lifted from the track it shall not be moved laterally in either direction.

X-Int 15. Then you would attach to the fourth claim by construction the condition as to these pivots being "on the same axial line" that is expressed in words in second claim?

Ans. I should consider it essential that that should act on the same axial line.

Adolph Barthol's testimony, complainant's witness in rebuttal.

(Record page 26)

X-Int. 28. Is it essential to the presence of the improvement described in the Day reissue, and recited in the fourth claim, that the scraper should be that particular kind of scraper which is shown in the drawings of the Day reissue and therein lettered A?

Ans. As far as the fourth claim of the Day reissue patent is concerned, it is not essential at all how the scraper A is constructed.

X-Int. 29. Is it essential to the presence of the improvement described in the Day reissue, and recited in the fourth claim, that the shank B should be present?

Ans. No, I do not think it is. The presence of the shank B is immaterial, so far as the fourth claim is concerned, and forms nothing but a part of the scraper. It is obviously used in connection therewith to get greater facilities for construction, and connecting the same with the brace and draw-bar ; and it clearly would not alter the function of the device, if the draw-bar and brace were directly attached to the scraper without the intermission of the shank.

X-Int 30. What is that element of the Day improvement that you find in the Elliott patent ?

Ans. The Elliott patent has a scraper.

X-Int. 31. Is it essential to the presence of the improvement described in the Day reissue, and recited in the fourth claim, that the forward ends of the draw bar and diagonal brace be pivoted independently of each other ?

Ans. No, there is no such necessity ; both are secured to one object, that is the scraper, and if one is turned upon its pivot, the other is turned in the same degree, therefore, if the pivotal point of the two were connected by a shaft, the parts would operate in the same manner.

X-Int. 32. Relative to the improvement described in the Day reissue in suit, and recited in the fourth claim, what is the whole function of the diagonal brace E ?

Ans. It is to firmly brace the track clearer against any possible side motion created by the angular position with which it acts upon the obstruction when drawn along the track. It is clear that a great portion of the resistance which the debris or obstacles exert upon the blade of the track clearer will create a heavy lateral pressure, which has to be resisted entirely by the lateral brace. In addition to this function, the lateral brace has to accommodate itself to the vibrations of the draw-bar, created by a rise or fall in the track ; it is therefore necessary that both be upon the same plane, so that they may swing together. The way the draw-bar and the brace are combined with the scraper in the Day patent, the brace is such as is always effective, no matter whether the scraper raises or lowers from the car.

X-Int. 33. Is it perfectly easy in the device of the Day reissue to make the draw-bar C large enough to furnish all requisite strength for drawing the scraper ?

Ans. I don't think it has anything to do with the principle of construction involved in the fourth claim, and I think it is merely a matter of proper proportion and arrangements of the parts to effect the desired purpose.

X-Int 34. Can you easily make the draw-bar C large enough to draw the scraper ?

Ans. I think the construction is adapted to admit any size of draw-bar.

In view of this testimony there can be no doubt as to the view that complainant takes of his claim. In complainant's view his said fourth claim is a claim broadly to the combination of (1) the draw-bar, (2) the scraper and (3) the diagonal brace, without reference to the form or shape of either, without reference to any particular manner of combination and without reference to any particular manner of pivoting the draw-bar and brace at their front ends. Defendant coincides in this view of the claim and believes that it is, and is intended to be, a claim broadly to the combination of the three elements, draw-bar, scraper and diagonal brace. It is very clear from an even cursory examination of the device referred to in this fourth claim, as it is perfectly clear from the evidence upon that point given by complainant's experts, that the whole office of the diagonal brace is to prevent lateral displacement of the scraper. In other and common language, this diagonal brace is simply the well-known corner brace which has been used in framing houses, and in other structures from time immemorial. If the court will refer for one moment to one of the patents under which defendant's track clearers are made, that of Samuel A Otis, No 78,537, dated June 2, 1868, antedating complainant's invention by some four years, the first glance at it will show that it has the draw-bar and the scraper pivoted underneath a car, and operating precisely as complainant's draw-bar and scraper operate, for precisely the same purpose. Defendant will contend when the more specific consideration of this patent is reached, that it also shows the diagonal brace, but this patent is not now referred to for that purpose. It is now referred to for the purpose of showing that all of the patented combination, except the diagonal brace, are clearly old, so that the court may clearly understand that the *new* element in the patented combination which complainant contends for, is the diagonal brace. And in this connection defendant desires the court to note that the whole function ascribed to this diagonal brace by complainant's experts, and its whole function as a matter of fact, is simply that of the corner brace which has been used from time immemorial in numberless structures, and particularly in house framing.

Court below says: "The fourth claim is for a scraper and a draw-bar in the line of the draft, irrespective of the method of pivoting scraper and draw-bar together or the method of raising and lowering either, and a diagonal brace, irrespective of the method by which it is fastened to the draw-bar or to the car, except that the bar and the brace must be pivoted on the same axial line. The scraper and the draw-bar were both old. The only part of the combination which is claimed to be new is the diagonal brace to enable the scraper to be kept in its place on the track." (Record page 51.)

THE PRIOR ART.

The Scofield Patent.

(Exhibits page 1.)

This is a patent on sulky-plows, No. 21,630, taken by B. B. Scofield, September 28, 1858. The parts to which we call the attention of the court are, the "plow-beam" *A*, the plow *D*, *E*, the "brace *j*" and the "axle *O*." The plow is attached to the plow-beam; its function is of course analogous to that of the scraper; the plow, of course, rises and falls as it passes over stones and other obstructions precisely as the railway scraper rises and falls for the same purpose. The plow-beam *A*, serves the same purpose as the draw-bar of the railway scraper, unless pushing be a patentably different thing from pulling. "Brace *j*" is the diagonal brace of the Day patent. The beam *A* and the brace *j* are both fast to the axle *O* (as are Day's draw-bar and diagonal brace) and this axle *O* is an axle that rotates or rolls freely, being journalled for the purpose, at its ends, in the two main wheels of the sulky-plow.

Charles L. Burdett's testimony, defendant's witness.

(Record page 33)

Int. 5. Please to examine the specification and drawings of Defendant's Exhibit Scofield patent and say whether or not in your opinion, said Scofield patent shows and describes substantially what is described in the reissued patent in suit and referred to in the fourth claim; on a supposed construction of that claim which makes it cover broadly the combination of the draw-bar, the scraper and the diagonal brace, without reference to the particular manner in which those parts are combined, as described in the reissued patent in suit.

Ans. I have examined the Scofield patent and find in that patent the combination of a draw-bar, or its equivalent, a scraper, or its equivalent, and a diagonal brace. The function of the diagonal brace in the combination is to prevent lateral displacement of the draw-bar and connected scraper or equivalent with respect to the path of the wheeled vehicle to which it is attached.

Let us see how complainant treats this reference in rebuttal.

Isaac DeGraff's testimony in rebuttal.

(Record page 22.)

Int. 3. Will you look at the patent of B. B. Scofield, for a wheeled plow patented September 8, 1858, and state if you find in such patent the device covered by the 4th claim of the Day reissue?

Ans. I do not.

This is all that this expert says upon this point and no living mortal knows *why* he does not find in the Scofield patent the device covered by the fourth claim of the Day reissue. Probably if pushed upon this point he would say that Scofield's plow is not Day's scraper and that Scofield's beam *A* pushes the plow while defendant's draw-bar draws the scraper. That is all that any one can say and when said it amounts to nothing.

Adolph Barthol's testimony in rebuttal.

(Record page 24.)

Int. 19. Will you look at the patent to B. B. Scofield, wheel plow, No. 21,630, and state if you find in such patent the device covered by the fourth claim of the Day reissue?

Ans. I do not.

The above was all that was intended by complainant to have this expert say about the Scofield patent, but we were a little inquisitive and we asked him certain other questions, to wit:

Int. 35. In the device of the Scofield patent, are the plow-beam A and the brace j, pivoted on the same axial line, to wit: the axis of the wheels?

Ans. They are not pivoted at all.

Int. 36. Is the beam A free to rise and fall at the front end?

Ans. Certainly.

Int 37. Where then is the pivot?

Ans. It is combined with a rolling axle, but an object to rise and fall at one end does not necessarily need a pivot.

Int. 38. Is the brace j, also combined with the same rolling axle?

Ans, Yes.

Int. 39. Does the brace j tend to prevent lateral displacement of the plow as it rises and falls?

Ans. No, the rising and falling of the plow is controlled by different devices, viz., the lever H, operated by the plowman from his seat.

Int, 40. Independently from the adjustment of the plow, wherein the lever H is used, does not the plow rise and fall with the plow beam, vibrating as you call it, with the rolling axle?

Ans. Certainly it does.

Int. 41. And in such vibration of the plow, does or not the diagonal brace j tend to prevent lateral displacement of the plow?

Ans. No, it does not; that lateral brace j is simply used, as in thousands of other plows and vehicles of all kinds, to combine the outer end of the axle to the draft pole, as the draft pole is all on one side of the vehicle, and without such brace no stiff truck could be obtained.

This testimony needs no special comment. It is clearly disingenuous to the last degree. When this expert says that the "brace *j*" has no tendency to prevent lateral displacement of the plow, with reference to the remainder of the whole machine, he says what everybody knows to be untrue, and *grossly* untrue.

The side pressure upon a plow is more than fifty times as great as any side pressure that is likely to be put upon a scraper or snow-plow attached to a street car, and in such a structure as that of Scofield, if there were not such a diagonal brace as the "brace *j*" used, the draw-bar or plow-beam would very soon lose its proper direction or alignment with reference to the axle of the two main wheels. The diagonal brace of the Scofield sulky-plow has very much more to do in preventing lateral displacement than has the diagonal brace in Day's track clearer. This fact is perfectly obvious to any person with common sense, and Barthol's statement to the contrary simply discredits himself.

The Sheridan Patent.

(Exhibits page 5.)

The claim in suit is anticipated in the patent of James Sheridan for Track Clearer, No. 35,066, dated April 22, 1862, which is one of the patents which defendant is licensed to use.

In that drawing the scraper is lettered "*R*" and the specification says: "The plow is represented in the drawing by *R*. It is secured to the lower end of the beam *F*." This beam *F* is the draw-bar, and although it rests vertically when not in use, it rests obliquely when the scraper is pushed backward by meeting any obstruction on the track. The specification says: "The beam *F* is arranged so as to be capable of a vertical motion and also a vibrating one. Its upper end is suspended by pivots." These pivots in the drawing are lettered *r*. The draw-bar and scraper have diagonal braces on each side and these are lettered *a*; on this point the specification says: "To keep the scraper on the track, it is necessary to brace it laterally and the braces fulfilling this function must be so arranged as not to interfere with its free action in other respects. To this end I fit the clamp *G* loosely around the beam and from it carry two braces *a*, *a*, on each side of the beam to a hinged joint *v*, (in dotted lines) on each side of the brackets *D*. There are four braces in all which *converge* from the clasp to the point *v*, in one direction, and *diverge* from the clasp to the same point in the other, as shown in figures 2 and 1. By this means the beam is firmly braced on each side and at the same time left perfectly free to raise and fall and to vibrate longitudinally on the pivots *r*."

This Sheridan patent clearly shows the combination of draw-bar, scraper and diagonal brace, each used for the same purpose as the same elements are used in the device of the Day patent, and the entire combination of these elements in the Sheridan patent produces the same result as does the entire combination in the Day patent in substantially the same way.

The only difference that can be pointed out, is, that in the device of the Day patent the draw-bar always rests in an oblique position, while in the device of the Sheridan patent the draw-bar sometimes lies obliquely and sometimes lies vertically. The Sheridan draw-bar lies vertically when not in use, but it necessarily assumes the oblique position the moment it is put to use and strikes an obstruction on the track: this difference is of course an entirely immaterial one.

Charles L. Burdett's testimony.

(Record page 33.)

Int. 6. Please to examine the specification and drawings of Defendant's Exhibit Sheridan 1862 patent, and say whether or not in your opinion, said Sheridan 1862 patent shows and describes substantially what is described in the reissued patent in suit, and referred to in the fourth claim; on a supposed construction of that claim which makes it cover broadly the combination of the draw-bar, the scraper and the diagonal brace, without reference to the particular manner in which those parts are combined as described in the reissued patent in suit.

Ans. I have examined the Sheridan 1862 patent and find in combination. a draw-bar, with a connected scraper and a diagonal brace to hold the scraper from lateral displacement. The draw-bar is represented as having a nearly vertical position but none the less serves as a draw-bar, and diagonal braces are arranged upon each side of the draw-bar or "beam F"; so that the device contains the elements—a draw-bar, diagonal brace and scraper combined for the same purpose as in the patent in suit.

The scraper in the reissued patent in suit is held down wholly by its own weight upon the track, whereas the scraper in the Sheridan patent is held down by means of a spring K; but the broad combination of the three elements, draw-bar, scraper, and diagonal brace are undoubtedly present in the Sheridan device. Athough this spring K may also act in the combination as a species of draw-bar pushing against, instead of pulling upon the scraper, there is no patentable distinction in the one method of operation over the other, or broad difference in mechanical effect.

Int. 7. In the device described in Defendant's Exhibit Sheridan's 1862 patent, suppose the scraper while the car is in motion, strikes an obstruction on the track so as to be forced backward, what is then the position of the draw-bar? (Meaning by "draw-bar" the bar to which the scraper is attached.)

Ans. When the scraper strikes an unyielding obstruction on the track, it is pushed back so that the beam is thrown out of its vertical position, and the scraper and connected beam or bar rise and pass over the obstruction compressing in this movement the spring K, which serves to restore the scraper and draw-bar to the position they occupied before the obstruction was met.

Int. 8. When the beam or draw-bar is thus thrown out of its vertical position, what position does it assume for the time being?

Ans. It assumes a sloping position, out of the vertical.

Let us see what complainant has to say about this in rebuttal.

Isaac DeGraff's rebuttal testimony.

(Record page 22.)

Int. 4. Will you look at the patent of J. Sheridan, No. 35,066 dated April 22 1862, and state if you find in that the device claimed in the 4th claim of the Day reissue.

Ans. I do not.

Why this witness does not find in the Sheridan patent the device claimed in the fourth claim of the Day reissue will always remain a mystery, for he does not attempt to tell.

Adolph Barthol's rebuttal testimony.

(Record page 24.)

Int. 20. Will you look at the patent to J. Sheridan, No. 35,066, dated April 22d, 1862, and state if you find in that patent the device covered by the fourth claim of the Day reissue.

Ans. His patent is for a track clearer but does not contain the device claimed in the fourth claim of the Day reissue.

Why this witness does not find in the Sheridan patent the combination of a draw-bar, scraper and diagonal brace, will also always remain a mystery, for he does not attempt to tell. The fact remains, however, that the claim in issue is broadly to the combination of a draw-bar, scraper and diagonal brace, and that such a combination is found in the Sheridan patent.

The Johnson & Bolton Patent.

(Exhibits, page 8.)

The Johnson & Bolton patent, No. 38,229, dated April 21, 1863, substantially anticipates the claim in issue. The Johnson &

Bolton device clearly has the pivots, draw-bars and the scrapers The draw-bars are lettered "*e*" and the scrapers are lettered "*f*.' The diagonal brace is present in substance and is lettered "*l*." This diagonal brace *l* is not exactly like the diagonal brace of the Day device, but it must be remembered that if Day is restricted to his exact diagonal brace all question of infringement disappears: therefore, any diagonal brace which serves the purpose of preventing lateral displacement of the draw-bar, is for the purposes of this case *the* diagonal brace in question. The Johnson & Bolton device has such a diagonal brace, and it is lettered *l*. And it runs from the draw-bar to the lever marked "*m*", and necessarily must tend to prevent the lateral displacement of the draw-bar and scraper.

Charles L. Burdett's testimony.

(Record page 34.)

Int. 9. Please to examine the specification and drawings of Defendant's Exhibit Johnson and Bolton patent, and say whether or not in your opinion, said Johnson and Bolton patent shows and describes substantially what is described in the reissued patent in suit and referred to in the fourth claim; on a supposed construction of that claim which makes it cover broadly the combination of the draw bar, the scraper and the diagonal brace, without reference to the particular manner in which those parts are combined, as described in the reissued patent in suit.

Ans. I have examined the specification and drawings of the patent enquired of, and find therein a scraper fixed upon a draw bar, or its equivalent, and held against lateral play by a brace. The draw-bar pushes the scraper instead of pulling it, but this difference in construction is not one from the use of which any unexpected results flow, such as would make one device patentable over the other. It is immaterial, patentably considered, whether the scraper is pushed or pulled by the draw bar.

Let us see what complainant says about this in rebuttal.

Isaac DeGraff's rebuttal testimony.

(Record page 22.)

Int. 5. Will you look at the Johnson and Bolton patent, Track Clearer, No. 38,229, and state if you find in that patent the device claimed in the 4th claim of the Day reissue.

Ans. I do not.

Adolph Barthol's rebuttal testimony.

(Record page 25.)

Int. 21. Will you look at the Johnson and Bolton patent, No. 38,229, and state whether or not you find in that patent the device covered by the fourth claim of the Day reissue?

Ans. His patent is for a track-clearer, but there is no such device used as described in Day's reissued patent and claimed in the fourth claim thereof.

We shall never know why Messrs. DeGraff and Barthol do not find in the Johnson & Bolton patent the combination of a draw-bar, scraper and diagonal brace. They say that they do not find this combination there, but the reason why, they permit to remain a mystery.

The Hutchinson Patent.

(Exhibits, page 15.)

The claim in issue is anticipated in the patent of Samuel Hutchinson for improvement in Gang Plows, No. 56,942, dated August 7, 1866. The letter *T* denotes the plow or scraper; the letter *S* denotes the draw-bar (a genuine draw-bar) pulling the plow, and the letter *W* denotes the diagonal brace. The draw-bar and diagonal brace are both fast to the rolling shaft or axle *D*. This patent shows a full and complete anticipation of Day's so-called invention. The only difference that can be pointed out is that Hutchinson has a plow where Day has a scraper, but the uses of the plow and scraper are analogous, and these patents on track-clearers speak of these scrapers sometimes as scrapers and sometimes as plows; for instance, James Sheridan's patent No. 35,066, dated April 22, 1862, referring to this part says: "The plow is represented is the drawing by *R*."

Charles L. Burdett's testimony.

(Record page 34.)

Int. 10. Please to examine the specification and drawings of Defendant's Exhibit Hutchinson patent and say whether or not, in your opinion, said Hutchinson patent shows and describes substantially what is described in the reissued patent in suit and referred to in the fourth claim, in a supposed construction of that claim which makes it cover broadly the combination of the draw-bar, the scraper and the diagonal brace, without reference to the particular manner in which those parts are combined as described in the reissued patent in suit.

Ans. I have examined the said patent and find therein a frame moving upon and supported by wheels, bearing, pendant from the frame, a scraper or its equivalent, fixed at the end of a draw-bar, or its equivalent, held against lateral motion by a diagonal brace. The broad combination of a draw-bar, scraper and brace appear to be present in this patent; provided, as in my opinion is the case, there is no patentable difference between pushing and pulling the scraper.

Int. 11. I wish to call your attention to this Hutchinson patent from another point of view. I take it and letter a certain part S in red ink; I letter another part, in red ink, T, and a third part in red ink W. What is the part thus lettered S; what the part lettered T, and what the part lettered W?

Ans. The letter S denotes a bar arranged longitudinally of the frame of the machine and constituting what I should call a side bar of the frame I; the letter T denotes a plow attached to the lower end of a standard, which standard is attached to the frame S; the part W represents a diagonal brace connecting the bar S with a transverse part of the frame of the machine.

Int. 12. Is or not the bar S pivotally hung at its front end, so that its rear end and the plow T are free to rise and fall?

Ans. The specification states that "the ends of the frame I," (of which the bar S is a part,) "rest loosely in frame A the back end of I resting upon the rear crosspiece *d* of A, and the front end resting upon cleats *e* when I is fully down." What the inventor calls a gauge screw passes vertically through the front part of the frame and rests upon the cleat, and the frame, if its rear part were lifted, would rock or tilt on the end of this screw. The diagonal brace is shown as pivotally connected to the cross bar or frame A, and to the side of the bar S. This construction permits the bar S to be lifted, bearing with it the plow T by means of the connecting standard J.

Int. 13. Does or not the bar S cause the propulsion or movement of the plow?

Ans. Yes; if the S is moved it will move the plow T.

Int 14. With reference to the axle D, is the plow T pushed or pulled?

Ans. It is pulled.

Int. 15. Then considering the combination of the bar S, the plow T, and the brace, W, is there or not any need to make any distinction as to pushing or pulling between that combination and the combination recited in the claim in suit?

Ans. There is not.

Let us see what complainant says about this in rebuttal.

Isaac DeGraff's rebuttal testimony.

(Record page 23.)

Int. 6. Will you look at the patent of S. Hutchinson, a Gang-plow, No. 56,942, and state whether or not you find the device set forth in the fourth claim of the Day reissue?

Ans. I do not.

Adolph Barthol's rebuttal testimony.

(Record page 25.)

Int. 22. Will you look at the patent to S. Hutchinson, gang-plow, No, 56,942 and state if you find in that patent the device covered by the fourth claim of the Day patent?

Ans. This patent is for a gang-plow, and I do not find a single element of the claim referred to in Day's reissued patent.

As before complainant's experts leave us entirely in the dark as to why they do not find in the Hutchinson patent the combination of a draw-bar, scraper and diagonal brace.,

The Elliott Patent.

(Exhibits page 18.)

The claim in suit is anticipated in C. C. Elliott's patent for snow-scraper for Locomotives and Cars, No. 62,535, dated March 5, 1867. In that drawing the draw-bar is denoted by the letter *c*, the scraper by the letter *H*, and the diagonal brace is also represented by the letter *c*, including a continuation thereof which reaches down to the scraper, The opening between these parts is filled by the plate marked *G*, but this is simply an addition to the combination in question and not a substraction from it. In other words, the whole structure is made solid by this plate. Cutting out the center by removing the plate *G* is, of course, not invention or substantial change.

Precisely such a claim as complainant now makes was decided adversely by Commissioner Paine, wherein he held that a plow beam composed of two flanges and an open connecting web, consisting of flat bars, is not patentable over a prior plow beam the same in structure, except that the open spaces are filled by thin plates of metal.

> *G. Wiard's Application*, 16 Official Gazette, 858, Paine, Com'r. 1869.

Charles L. Burdett's testimony.

(Record page 35.)

Int. 16. Please to examine Defendant's Exhibit Elliott Patent. On a construction of the claim in suit which makes it cover broadly the combination of the draw-bar, scraper and diagonal brace, does or not this patent show substantially that combination?

Ans. I have examined Exhibit Elliot Patent and find therein an equivalent of the combination enquired of.

Let us see what complainant has to say about this in his rebuttal testimony.

Isaac DeGraff's rebuttal testimony.

(Record page 23.)

Int. 7. Will you look at the patent to C. C. Elliott, No. 62,535, and state if you find in that patent the device claimed in the fourth claim of the Day reissue.

Ans. I do not find any such device?

Adolph Barthol's rebuttal testimony.

(Record page 25)

Int. 23. Will you look at the patent to C. C. Elliott, 62,535, car track clearer, and state if you find in that patent the device covered by the fourth claim of the Day reissue?

Ans. I find in that patent but one of the elements claimed in the fourth claim of the Day reissued patent, and no device that could be construed to refer to the fourth claim of Day's reissued patent.

Int. 30. What is that element of the Day improvement that you find in the Elliott patent?

Ans. The Elliott patent has a scraper.

As before, these witnesses leave us in the dark as to their reasons.

The Wattles Patent.

(Exhibits page 21.)

The claim in issue is anticipated in the patent of H. J. Wattles for Wheel Plow, No. 68,673, dated Sept. 10, 1867. In that patent the plow or scraper is lettered *A*, the draw-bar is lettered *B* and the diagonal brace, readily to be seen, is not lettered.

Charles L. Burdett's testimony.

(Record page 35.)

Int. 17. Please examine Defendant's Exhibit Wattles Patent. Do you or not find therein a draw-bar pivotally hung at its front end, a plow pulled forward in its work by such draw-bar and a diagonal brace preventing lateral displacement of such draw-bar, and which might, if need be, aid in the propulsion of such plow?

Ans. I have examined Exhibit Wattles patent, and find therein a draw-bar, bearing a plow and held by a diagonal brace against lateral displacement, the draw bar being attached to a cross piece that permits of a rotary motion on its bearings.

Let us see what complainant says about this in rebuttal.

Isaac DeGraff's rebuttal testimony.

(Record page 23.)

Int. 10. Will you look at the patent to H. J. Wattles, No. 68,673, and state if you find in that patent the device claimed in the fourth claim of the Day reissue?

Ans. I do not.

Adolph Barthol's rebuttal testimony.

(Record page 25.)

Int. 24. Will you look at the patent to H. J. Wattles, No. 68,673, and state if you find in such patent the device claimed in the fourth claim of the Day reissue?

Ans. This patent is for an improvement in gang-plows, and there is no combination of elements to compose the device similar to that referred to in the fourth claim of the Day reissued patent.

The Wells Patent.

(Exhibits page 22)

The claim in issue is anticipated in the patent of E. B. Wells, for improved Scraper Attachment, No. 73,212, dated June 2, 1868. In the drawing of that patent the "scrapers or plows," as this patentee calls them, are marked *D.* The diagonal brace is marked *F.* The draw-bars, clearly to be seen, are not specially lettered.

Charles L. Burdett's testimony.

(Record page 35.)

Int. 18. Please examine Defendant's Exhibit Wells Patent, and say whether you find therein a draw-bar free to rise and fall at the end where the scraper is attached and provided with a diagonal brace against lateral displacement.

Ans. I have examined the Wells patent enquired of, and find therein shown and described a scraper borne at the end of a draw-bar, the other end being connected to the bottom of the car and the scrapers held against lateral displacement by a connecting cross-bar that by means of connected parts, forms also a brace ; the scraper being free to rise and fall as the device is borne forward in use

Let us see what complainant says about this in rebuttal.

Isaac DeGraff's rebuttal testimony.

(Record page 23.)

Int. 8. Will you look ot the patent of E. B. Wells, No. 72,212, and state if you find in that patent, or not, the device claimed in the fourth claim of the Day reissue.

Ans. I do not.

Adolph Barthol's rebuttal testimony.

(Record page 25.)

Int. 25. Will you look at the patent to E. B. Wells, No. 72,212, and state if you find in that patent the device covered by the fourth claim of the Day reissue ?

Ans. This patent is for an improvement in scraper-attachments to cars, and contains some of the elements of the Day reissue patent, but there is no such combination of parts as claimed in the fourth claim of Day's reissued patent.

The Otis Patent.

(Exhibits page 25.)

The claim in issue is anticipated in the patent of Samuel A. Otis for Track Scraper, No, 78,537, dated June 2, 1868, which is one of the patents under which defendant is licensed. In the drawing of that patent the scrapers are marked *B*, the draw-bars are marked *C*, and the diagonal braces (spring braces) are marked *O*.

Charles L. Burdett's testimony.

(Record page 35.)

Int. 19 On this broad construction of the claim in suit already supposed, does or not Defendant's Exhibit Otis Patent show that combination?

Ans. It does. The scrapers are attached to the lower end of a draw-bar, the draw-bar being pivotally connected to the bottom of the car and the scrapers held against lateral displacement by means of a rod and a diagonal brace.

Let us see what complainant says about this in rebuttal.

Isaac DeGraff's rebuttal testimony.

(Record page 23.)

Int. 9. Will you look at the patent of Samuel A. Otis, No, 78,537, and state if you find in that patent the device claimed in the fourth claim of the Day reissue?

Ans. I do not.

Adolph Barthol's rebuttal testimony.

(Record page 25.)

Int. 26. Will you look at the patent of Samuel A. Otis, No. 73,537, and state if you find in that patent the device claimed in the fourth claim of the Day reissue?

Ans. No, I do not. I do not think there are elements in this Otis patent which correspond with the elements cited in the combination described in the fourth claim of Day's reissue.

The Schnebly, Goodwin and Perry Patents.

The claim in issue is substantially anticipated in the patent of William and Thomas Schnebly, for improvement in Mowing Machines, No. 22,203, dated November 30, 1858 (Exhibits, page 3); also in the patent of William F. Goodwin for Mowing Machines, No. 101,120, dated March 22, 1870 (Exhibits, page 29); also in the patent of John G. Perry for Mowing Machine, No. 104,489, dated June 21, 1870 (Exhibits, page 31); and also in the patent of John G. Perry, for mowing Machine, No. 104,490, dated June 21, 1870 (Exhibits, page 34). These four patents are all for mowing machines; all of them have a cutting bar in the place of

Day's scraper; all of them have a pivoted bar propelling the cutting bar and all of them have the diagonal brace. In the Schnebly patent this diagonal brace is lettered *J;* in the Goodwin patent it is lettered C^4; in the first Perry patent it is lettered *L;* and in the last Perry patent it is lettered *M.*

Charles L. Burdett's testimony.

(Record page 36.)

Int. 20. Please examine Defendant's Exhibits Schnebly patent, Goodwin patent, and the two Perry patents and say whether or not you find in each of them a pivotally hung bar giving motion or propulsion to an implement at the free end thereof and a diagonal rod or brace supporting such bar and implement against lateral displacement and capable of assisting in the motion or propulsion of the implement if need be.

Ans. I have examined the Schnebly patent and find therein a bar pivotally attached to a wheeled vehicle bearing on its free end a cutting implement which is held in position by a diagonal brace. In the Goodwin patent I find a bar pivotally connected to a wheeled structure bearing at its free end a cutting device, which is held against lateral displacement by a diagonal brace pivoted to the axle to which the bar is also pivotally attached. In the Perry patent inquired of I find, in each, a bar, or its equivalent, pivotally connected to a wheeled structure the bar bearing at its outer and lower end a cutting device which is held against lateral displacement by means of a brace or tie pivoted to the axle of the structure.

All of the devices described and illustrated in these patents last enquired of, belong to the class of mowers or harvesters, and in each of the devices shown and described in the said patents I find, in combination, a draw-bar or its equivalent, pivotally attached to a wheeled structure, bearing at its free and lower end an implement that is moved along near the ground, and a diagonal brace. So far as the movement of the implement on the free end of the main bar is concerned it is evidently immaterial, if patentable difference is sought for, whether the draw bar pushes or pulls it and the function of the diagonal brace is plainly identical whether the implement is pushed or pulled; it is used to prevent lateral displacement of the implement at the end of the bar and so hold it in a given position with reference to the path of the wheeled structure. It is also clear that the substitution of a scraper for a cutter in any of these devices broadly considered, would not be invention or involve anything more than the most ordinary intelligence.

Let us see what complainant says about this in rebuttal.

Isaac DeGraff's rebuttal testimony.

(Record page 23.)

Int. 11. Will you look at the Schnebly patent, the Goodwin patent, and the two Perry patents, being for mowers and harvesters, and state if you find in them the device claimed in the fourth claim of the Day reissue?

Ans. I do not find the device in any of them.

Adolph Barthol's rebuttal testimony.

(Record page 26.)

Int. 27. Will you look at the Schnebly patent, the Goodwin patent, and the two Perry patents, for harvesters and mowers, and state if you find in either of them the device covered by the fourth claim of the Day reissue?

Ans. These patents are for mowers and harvesters, and I do not find in any one the combination of elements that would present a like, or similar device to that described in the Day reissue patent and claimed in the fourth claim thereof.

The Strauss Patent.

(Exhibits, page 37.)

The claim in issue is substantially anticipated in the patent of Arnold Strauss for Track Clearer, 110,602, dated December 27, 1870. In the drawing of this patent the draw-bar is denoted by the letter *A*, the scraper by the letter *a*, and the diagonal brace by the letter *F.* The diagonal brace is a spring, but it is an extremely stout spring, and from the function it serves its power is altogether in excess of any lateral pressure likely to be put upon the scraper.

Conclusion on this Point.

Among the prior patents offered in evidence by defendant, there are those, such for instance as James Sheridan's patent of April 22, 1862, (Exhibits page 5), which show the entire combination patented to complainant on a construction of the claim in issue, which makes it cover broadly the combination of a draw-bar, scraper and diagonal brace, and defendant's counsel has no hesitation in saying that in his opinion that is precisely what the claim does cover and what it was intended to cover.

But in order to defeat the claim in issue, it is not necessary to find this exact combination in the prior art, for confessedly the draw-bar and scraper are old, and further confessedly the sole object of the diagonal brace is to prevent lateral displacement; in other words, it is the well known corner brace used in multitudes of structures, not only those shown in the reference but in multitudes of other structures: this corner brace is old, for instance, in house framing, since a time when the memory of man runneth not to the contrary. The use of a brace to hold the draw-bar or to hold any other part against lateral displacement or against any other kind of displacement, is the commonest kind of a mechanical expedient, which would occur to anybody, even to those who have no knowledge of mechanical matters whatever. Suggest to any man that this draw-bar, or any similar or analogous thing, or even a dissimilar and non-analogous thing, needs strengthening in a particular direction, and even a *non-compos* knows enough to employ the proper kind of a brace. Complainant's patent is clearly void as to this fourth claim in issue for the lack of patentable novelty.

Some Cases.

"There are, undoubtedly, cases where a combination may be made of parts never combined before where no invention is involved. Such is the case where a well-known contrivance is used to perform a function exactly analogous to that in which it was formerly used."

Wisner, et al. v. *Grant, et al.*, 7 Fed. Rep. 485, Wallace, 1880.

Complainant's patent was for "an improved suspension ring for business cards, so that they can be easily hung against the wall." A ring which was like the patented ring, except that the latter was somewhat longer in the shank, had previously been used upon the tape of umbrella fasteners. The court said: "Substantially the same article is used for two objects, and the new use is quite analogous to the purpose for which the article was previously used;" and thereupon dismissed the bill.

Griffiths, et al. v. *Holmes, Booth & Haydens*, 8 Fed. Rep. 154, Shipman, 1881.

By the court: "But even if the application of a cinder-notch to the cupola furnace was first made by the appellant, the question remains whether, standing alone, it implies invention and is patentable. We think this question must be answered in the negative. Neither a cupola furnace nor a cinder notch is new. The use of a cinder notch for drawing off cinders from a blast furnace is as old as blast furnaces themselves. The function which the cinder notch performs in the process covered by the appellant's invention, is precisely the same for which it is used in a blast furnace. * * The application to a cupola furnace for the purpose of drawing off the cinder, of the cinder notch used in the blast furnace to accomplish the same end, would occur to any practical man. When applied to a cupola furnace, the same function was performed in the same way, by the same means. In making this application there was no invention."

Vinton, et al. v. *Hamilton et al.* 21 Official Gazette, 557, Sup. Ct., 1882.

By the court: "The first claim which it is contended the defendants have infringed, is in these words: '(1) An earthen-ware saucepan, the bottom of which is rounded and has a regular surface of or about an equal thickness throughout, substantially as and for the purpose described.' The answer denies that there is any patentable novelty in the plaintiff's invention and also denies infringement.

It is certainly true that the plaintiffs were not the first to discover the advantages which earthen-ware vesels possess over metallic vessels, for some kinds of cooking. Earthen stew-pans of various forms, as the proofs abundantly show, had been in common use long anterior to the plaintiffs' invention. In view of such prior use of earthen-ware vessels for culinary purposes, and the admitted fact that long before the plaintiff's invention it was a common thing to make cast-iron kettles, the bottoms of which were rounded and had a regular surface of or about an equal thickness throughout, and having lugs or projections for handles, and feet cast integral with the body of the kettle, it is a serious question whether the plaintiffs have done anything more than to substitute one well-known material for another in the production of a well known article, which, as was held in Hotchkiss *v.* Greenwood, 11 Howard, 248, is not the subject of a patent."

Scott v. *Evans* 11 Fed. Rep. 726, Acheson, 1882.

By the court: "The provision for upright and horizontal stays in the wire cloth case, and the annular and upright stays in the wire cone, are not inventions. They are suggestions which would occur to any skilled mechanic in constructing such chambers of wire cloth from the very nature of the material and are mere matters of workmanship, involving no invention."

Nat'l Mfg. Co. et al., v. *Myers*, 15 Fed. Rep. 237, Matthews, 183.

By the court: "Backus, in his first claim, seeks to cover the idea of making a casing for his wheel of two plates, in one of which plates was cast the opening for the induction and escape pipes. It seems to me that if any mechanic had been directed to make a wheel case of two plates, which should contain water-tight openings for the induction and escape pipes, he would have found it almost a necessity to cast the openings upon one of the plates, and I think there is no invention whatever involved in the idea of casting these openings upon one plate instead of casting half or a portion in one and the other part in the other."

Backus Water Moter Co. v. *Tuerk, Jr., et al.*, 24 Official Gazette, 994, Blodget, 1883.

By the court: "There never was a time, in my judgment, since the first lock was invented by Tubal Cain, or whoever was the inventor, when there was patentable novelty in combining two locks with a single door. There may be no record of its having been done, but no one can doubt that whenever one lock was found to be inadequate another was added. I cannot make this plainer by argument, but I may perhaps by illustration. When nails were invented and had become public property, the carpenter who had the right to use one nail might use two if he found one would not fasten his two pieces of wood sufficiently for his purpose. If one has invented a pair of shoes of a new form and another pair of shoes of a different form, a combination consisting of putting a shoe of one of these forms upon the right foot and one of the other form upon the left, would not be patentable. If one has made a new plow and used it with oxen it is not patentable to use the same plow in combination with a horse independently of the mechanical adaptation.

In the language of the old law, it is a double use."

Yale Lock Mfg. Co. et al. v. *Berkshire Nat'l Bank, et al.* 17 Fed Rep., 531, Lowell, 1883.

By the court: "The question therefore is whether employing as the forward truck of a locomotive engine with fixed driving wheels, a truck already in common use on railroad cars, has the novelty requisite to sustain a patent.

* * * * * *

It is settled by many decisions of this court which it is unnecessary to quote from or refer to in detail, that the application of an old process or machine to a similar or analogous subject, with no change in the manner of application and no result substantially distinct in its nature, will not sustain a patent even if the new form or result has not before been contemplated.

* * * * * *

In the case at bar the old contrivance of a railroad truck, with the swiveling king-bolt, transverse slot and pendant divergent links already in common use on railroad cars is applied in the old way, without any novelty in the mode of applying it, to the analogous purpose of forming the forward truck of a locomotive engine. This application is not a new invention and therefore not a subject of a patent."

Pa. Railroad Co. v. *Locomotive Engine Safety Truck Co.*, 27 Official Gazette, 207, Sup. Ct., 1884.

By the court: "The gist of the invention set forth in the descriptive part of the specification, so far as the first claim is concerned, is to cut the two penetrating ends of the wire diagonally and in such a way that while the staple is being driven the cut faces will both of them be on the lower side and the two penetrating ends will both of them incline upwardly. It is shown to have been commonly known that the effect of a bevel or a diagonal cut on a penetrating point was to force the point, in being driven, in a direction away from the bevel or cut. Double pointed staples with a diagonal cut on each point, but the diagonal cut on one point on the upper and outer side and on the other point on the lower and outer side, as the staple was driven were old. They were used to secure wire screens as guards for windows. The effect in driving them was to bring the two points together by throwing them towards each other through their movements in opposite directions. The mechanical action embodied was the forcing each point in being driven in a direction away from the bevel or cut. The result was that the legs of the staple were bent and came together, and were thus clinched in the driving, and it was more difficult to pull out the staple than if the legs had gone in without bending. In view of this state of the art there was no patentable invention, and nothing more than mechanieal skill in putting the diagonal cuts or bevels on the same side of each leg of the staple, so as to give both points in driving an inclination in the same direction, that direction being one way from both bevels, and in using the device to fasten a bail."

Double Pointed Tack Co. v. *Two Rivers Mfg. Co. et al.* 25 Official Gazette, 1075, Sup. Ct., 1883.

By the court: "In view of the state of the art there is no invention in claim 1 of the patent in using to attach the base-pan an old mode used in attaching other projecting parts of the stove."

Bussey, et al. v. *Excelsior Mfg. Co.*, 26 Official Gazette, 733, Sup. Ct., 1884.

Complainant's patent was for an improved pavement. This pavement consisted of blocks of wood cut from trunks of small trees, set with their fibres vertical upon a bed of broken stone, sand or gravel, and with the spaces between the blocks filled with sand or gravel. The use of such wooden blocks thus vertically set, was old in the art. The foundation of stone or gravel and the filling of the spaces with sand or gravel were old in the art in connection with stone pavements. The question was whether bringing the wood into juxtaposition with the foundation and filling, which were old in stone pavements, constituted invention, and the court held that it did not.

Phillipps v. *Detroit*, 4 Supreme Ct. Rep., 580, Sup. Ct. 1884.

Using obvious expedients for common purposes does not amount to invention. Thus says Commissioner Fisher: "I think the second claim was properly rejected. The novelty lies in encasing two bolts in the casting. This is an obvious expedient, one analogous form of which is given in the mill referred to by the examiner."

Stevens & Powers' Application, Commissioner's Decisions for 1869, p. 63, Fisher, Commissioner.

In another case before Commissioner Thatcher the applicant sought a claim for a rigid fastening between two plow beams, and thereupon the Commissioner said: "There is, in my opinion, no essential difference between the subject-matter of the third claim and the invention shown in the patent of Isaac Edwards, September 19, 1846. Handles, braces and converging beams are there found. The only difference being that the forward ends of the beams are not rigidly fastened together; but it required no invention whatever to transfer the handles and braces from the beams shown in Edward's patent to beams fastened rigidly together as in this case. * * The subject-matter of this claim is wanting in patentable novelty."

M. G. Slemmons' Application, Commissioner's Decision for 1874, p. 115, Thatcher, Commissioner.

In another case, an infringement suit in court, the alleged invention was the use of a U-shaped channel-iron for holding the point rails of a railway frog in place; that is, the U-shaped channel-iron was used as a brace for the two rails, which, in a railway frog, converge to a point. A somewhat similar piece of channel-iron had previously been used to hold the wing rails of a railway frog in place, and thereupon the court said: "When once the utility of the channel-iron, as a means for holding the wing rails in their proper relations to each other, was shown, there was no more invention in using it to hold the point in place and strengthen the web of the point rails than there was in using a bolt or rivet to fasten these channel-irons to the rails; bolts and rivets being old."

Weir v. *Morden,* 21 Fed. Rep. 243, Blodgett, 1884.

COMPLAINANT'S CLAIM MORE NARROWLY CONSTRUED.

It is possible, of course, for the court to so construe the fourth claim of Day's reissued patent that it shall include as elements of that combination elements or factors which are not specifically mentioned in the claim. Courts do this and do it properly, sometimes; but as defendant's counsel views the matter it ought not to be done by a court except in a case where otherwise the complainant is likely to lose the benefit of a real invention, something of real value, novelty and utility. That is not the present case, as defendant's counsel views the matter. But it is entirely immaterial to defendant whether or not the court takes such a course in this case, for if the court takes into consideration and construes into this claim either the manner in which Day combines his draw-bar, scraper and brace, to wit: by means of the casting *B*, or the manner in which Day pivots the front ends of his draw-bar and brace, to wit: by giving each an independent pivot, in either of such cases no question of infringement arises, for neither of these features, nor any equivalent thereof, is present in Day's device.

Charles L. Burdett's testimony.

(Record page 36.)

Int. 21. If the fourth claim of the reissued patent in suit be limited to the manner of combination described in the patent, requiring the presence of the socketed casting; or if that claim be limited so as to require that the draw-bar and the brace be pivoted independently of each other; in either of these events does or not defendant's device complained of as an infringement (supposing the same to be illustrated by the model Complainant's Exhibit A) embody the construction described in said reissue and referred to in said fourth claim?

Ans. It evidently does not. The limitation in the first branch of the question requires the presence of a specific socketed casting that is not found in Complainant's Exhibit A; and the limitation in the second branch of the question requires that the draw-bar and the brace shall be pivoted independently of each other, and this construction is evidently not present in Complainant's Exhibit A.

Such a construction of the claim in suit is not the construction which complainant contends for. Complainant contends that the claim in suit is broadly for the combination of a draw-bar, scraper and a diagonal brace, and in making such contention is forced to confess that the draw-bar and the scraper are old.

The claim in suit, upon such a broad construction—which in the opinion of defendant's counsel is a proper construction—has already been sufficiently discussed. Of course, if the court takes the narrower view of this claim, no question of infringement arises.

Respectfully submitted,

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of Counsel with Defendant and Appellee.